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1855

Review of
"A Monograph on Mental Unsoundness;"
by Francis Wharton."

L W Bacon

This unpublished volume, bearing the name as author of a distinguished writer upon subjects of criminal law, "forms the First Book in a Treatise on Medical Jurisprudence" about to be published by Mr. Wharton in connection with Dr. Moreton Stille, of Philadelphia. Having had the opportunity of examining one of the copies issued for private distribution, I have thought that it would be entirely consistent with the design of this exercise, and perhaps not altogether without interest to those who listen to it, if I should introduce, as the starting-point of the few remarks which I may make on the

subject of ~~Insanity~~ the Plea of Insanity, some notice of so important a work. Subjects, like this, in the department of Medical Jurisprudence, are certainly not the least important to be understood by the accomplished physician, since it is in relation to these that his duties, usually so unobtrusive, become ~~elevated into subjects of~~ the objects of public attention and notoriety; and concern, as truly as the treatment of wounds, or the prevention of pestilence, not only the life of the individual but the safety of the community.

The book before us is divided into two chapters. The first entitled "Mental Unsoundness in its legal Relations;" and the second, "Mental Unsoundness considered Psychologically." And the First Chapter is divided into four sections, I. What degree of unsoundness invalidates a Contract or Will. II. What is necessary to be proved in order to deprive a party of the management of his Estate. III. What degree of unsoundness avoids responsibility for Crime, IV. How Far Intoxi-

=ication affection Responsibility for Crime." Of these I propose to examine only the third, viz:- "What Degree of Unsoundness avoids Responsibil=ity for Crime."

We might take exception at once to the statement of the question to be discussed. For the distinctions in insanity according to which some instance men are pronounced to be irresponsible, are plainly not distinctions of degree but of kind. If the question were, is the man more or less responsi=ble? — we might ask questions about the degree of his insanity. But when the question is, Is he responsible or not? we must look for something specific by which to decide it. This will appear more evidently as we proceed.

The popular answer to this question, "that the accused must be unable to distinguish right from wrong," is discarded by this author in common with Dr. Ray and with modern authorities generally. And instead of it he classifies all cases of the avoidance of responsibil=ity in three categories:- "1st, Cases of incapable

of distinguishing right from wrong in reference to the particular act. 2d Cases where the defendant is acting under an insane delusion as to circumstances which if true would relieve the act from responsibility, or where the reasoning powers are so depraved as to make the commission of the particular act the natural consequence of the delusion. 3rd Cases where the defendant is impelled by a morbid & uncontrollable impulse to commit the particular act."

Now not to raise the question often mooted, but now, at last, generally conceded, touching the cases of "moral insanity" so called included in the last category, let us ask what sense it is in which the word irresponsibility is made to include such various acts? Obviously the most vague & uncertain possible. Notice the in the second specification above. "Cases where the defendant is acting under an insane delusion as to circumstances which, if true, would relieve the act from responsibility." We discover in the author's argument for this statement

cases of self-defense, and certain cases of mis-adventure. But is a man who kills another in self-defense, ~~or by mistake~~ not responsible for the act? Or does our law recognize no distinction between irresponsible, and justifiable?

Looking at these three sorts of cases in view of the true meaning of the word, we shall see that the first is the only sort in which responsibility is avoided. An idiot, — a phrenetic, — a man without moral sense — is not responsible to a court of justice. The idea of justice does not apply to him, any more than to a wild beast or a locomotive engine. He is not susceptible of punishment but only of restraint, and at the last extremity, of death, for the safety of society. In the second sort of cases, that common sense of which the common law is the perfection decides, not that the agent is irresponsible, but that the act was either justifiable or accidental. For it is not necessary to constitute a justifiable homicide that the killer should ~~be~~ have been actually in danger of his life, but only that that should have been his strong belief. The case of Selfridge ~~was~~ is hardly ne-

=cessary to be quoted in support of so obvious a prin=
=ciple. In the third-mentioned class of cases,
in which "the defendant is impelled by a morbid
& uncontrollable impulse to commit the par=
=ticular act," — ~~in the sense in which the~~ (to take
the author's own interpretation of his words) the
defendant ~~is~~ is neither irresponsible, nor justi=
=fiable. For by the phrase "uncontrollable impulse"
the context shows that the author does not mean
a spasmodic action of the muscles, to which the
will does not become a party, but only a pow=
=erful influence upon the will. "Uncontrollable" ~~is~~
signifies only ~~what~~ (to use a theologian's term)
the moral inability of the agent to control the
impulse. And here it is pertinent to remark that
~~the~~ if the physician & the jurisconsult who associ=
=ate in such a work as this would complete their
resources, they would do well to borrow somewhat from a
third profession which stands above them both,
and touches the subject of human responsibility
with a ~~bolder~~ firmer hand & a keener logic than
either.

Concerning this subject ~~of~~ of moral insanity, there can be no question, at the present day, that it does exist. There is a strong, and in a certain ~~se~~ sense of the word, an uncontrollable impulse in some diseased minds after certain forms of crime, — an impulse which moves ~~the~~ ~~subj~~ to the commission of these crimes in contravention of every apparent motive. And yet, if there is any point established with relation to such mono maniacs, it is that they are moral agents; — that they act in view of motives, and that in view of a sufficient penalty, they are deterred from the gratification of their morbid desires. Strange! that the more generally the moral treatment of lunatics is adopted & practised, the more loosely & recklessly their moral responsibility is denied.

But does not the morbid condition of the defendant's mind, in such a case, properly affect the degree of his punishment? Certainly it does! Just as among sane men the sudden & violent provocation is ~~not~~ justly allowed to reduce

the penalty of crimes of violence. This is not with the idea that the defendant is either irresponsible, or justifiable; but it is by way of reducing the degree of their guilt, or of recommending them to the mercy of the judge. It may well be doubted whether the existence of monomaniac desire should be suffered to go as far in palliating crime as the ~~ten~~ impulse of sudden anger. The very nature of the morbid impulse implies generally ~~to~~ too much of conscience & of deliberation. The case is more nearly analogous to that of violent animal ~~pas~~ lusts, unbalanced either by mental culture, or by early habits of self-control. To relax the sanctions of the law to such as these, is perilous to society, and is a grievous wrong to the lunatic himself, & to all liable to his unspeakable calamity, inasmuch as takes away from him his greatest aid in resisting the struggles of his disease.

The argument brings us back not far from the principle which the instinctive goodsense of early decisions established, that responsibility is limited by the capacity for distinguishing between right & wrong.

10.

Inflamation of the Iris

The similarity of the internal tract of the Eye to the other serous cavities of the body is very striking; a membrane which lines both the anterior & posterior chambers, like the membrane lining serous cavities, secrets & absorbs a similar fluid.

As we might suppose it is liable to the same [illegible] conditions.

[illegible]

are not commonly present in the Iris; heat, pain, [illegible]ness, & swelling; we have [illegible] other part of the body.

[illegible] are present the unequivocal signs of [illegible]

[illegible] on the surface or into the [illegible]

[illegible] is termed Coagulable Lymph.

This affection not only changes the color, but thickens & consolidates the delicate texture of the iris; impairing its functions, also causing [illegible] of the pupil, which alter the form & size of the pupil, [illegible]. The parts around the eye have their vascularity increased, & of course increased action of the pulse, causing enlargement of the vessels in the conjunctiva; increased redness of the eye, morbid sensibility to light, with the lachrymal discharge usually increased.

Change of color is one of most [illegible] [illegible] [illegible]

at its centre; the membrane be attached by short bracks [illegible]

[illegible] pupil into irregular or round apertures; the membrane may occupy only one side leaving the remainder clear.

The pupil is sometimes closed by the effusion of a large mass of lymph which becomes organized into a dense opaque mass, which is nearly impervious to light.

[illegible]

[illegible]

been destroyed; sometimes a fluid state of the [illegible]

[illegible]

When the inflammation extends to the posterior tunic it produces various degrees of imperfect vision; dimness [illegible] before the eye; preternatural sensibility to light & other external influences; there is redness of the [illegible] which waters, & becomes painful from [illegible] [illegible] or overexertion, with great liability [illegible] —

[illegible] any injury direct or indirect [illegible]

[illegible]

object, or if the [illegible] is constant & long continued;
Scilt's is more easily excited in certain habit of body,
as the Rheumatic & Gouty in which there is a [illegible]
tendency to the fibrous tissue; there is great tendency
to this disease if the constitution is affected with
[illegible]
without any apparent local cause.
[illegible]

The prognosis may be favorable if the inflammation
is recent & confined to the Iris; continuance of the disease
by increasing the contraction of the pupil, the effusion
[illegible]
[illegible]
[illegible] is unfavorable in proportion to the length of its
continuance: there is great danger to vision if the inflam-
mation extends to the Retina, still less hope of [illegible]
[illegible] nea is rendered opaque at the same time; but
[illegible] alterations of color, or large effusions if confined to
[illegible] a probability of full recovery;
[illegible] is not decisive; since patients who
[illegible]
recover.

Abortion is the expulsion of the contents of the uterus previous to viability, or if occurring as the result of criminal intent, previous to the full term of gestation.

It may be divided into three clafses, viz: Natural; Accidental, and Criminal. The first clafs being those arrizing from all circumstances refferable to the person of the female such as nervous irritation, displacements, malformations both of fœtus and mother, various exanthematous fevers, syphilis, Albumenaria, tumours

inflammation of the uterus or its appendages. hydatids. hemorrhage. syncope. debility plethora. death of ovum. adhesions of abdominal viscera. and also when necessarily induced by the physician, The Second class those arrizing from acrid medicines. falls. contusions. missteps. Strains. violence and other causes creating physical lesion. also emotional causes, The third class when induced by means employed to effect the end when no physical or moral necessities are indicated.

The first of these classes attracts the attention of the physician more than the others from the fact that the causes predisposing

exciting and immediate
are more intimately connected with each other and less easily separable, requiring more study experience and skill to diagnose and treat and a greater tax of patience and attention, occuring among all clases of females but less frequently to the vigorous and well developed than among those of enner-vated or depraved habit the result of luxury or misfortune; It is considered that the more perfect the state - so called - of civilization the greater the frequency of abortions for among barbarians it seldom or never occurs

The proces is attended by

hemorrhage and pain severe in proportions to the lapse of time after conception

During the first two months, there is very little occurence of either, frequently and the os and cervix uteri may returns to their normal size and appearance in from 24 to 36 hours.

After this period the separation of the ovum is attended with increasing and oft times excessive and hemorrhage, its expulsion with dangerous severe and more characteristic pain

Sometimes during the early weeks the embryo is expelled with unbroken membranes, or later going through all the stages of

regular labour in the expulsion of fœtus and placenta occupying a time varying from one hour or even less to many days, followed by a very variable amount of sanguineous discharge for an indeffinite length of time

The Symptoms of miscarriage are a discharge of water from the vagina if the membranes be ruptured with blood sooner or later following. periodical pains along the loins, lower parts of abdomen and the inner portions of the thighs, increasing in amount, force and frequency as the process advances, with more or less nausea and perhaps vomiting and rigors.

The treatment is by preventing its occurrence, or assisting its progress when inevitable. To those who have been accostomed to abort its preventions is sometimes of extreme difficulty.

Entire rest or an equitable condition both of body and mind is more valuable than all other adjuncts.

If the patient be enemic full nutritious diet should be maintained with cool water friction and mild stimulants, if plethoric — venesection, spare diet, saline cathartics and the horrizontal posture are generally indespensible, if any abnormal positions of the uterus occurs it must be remedied by

replacement. Here allow me to mention the peculiar treatment of a patient who having abor ted some six or seven times in various parts of the country attended by gentlemen of repu -ted celebrity and skill was placed under the care of "Prof. B. F. Barker of the chair of Obs- -tetrics at the New York Medical College". He diagnosed what had not before been discov- -ered — chronic retroversion of the uterus. with great dif- ficulty it was restored to a normal position. It was then retained by passing a bladder into the rectum which being inflated to the required size held the uterus in place. The bladder was removed for a short

time every day to allow defecation to occur. The treatment was successfull- the next pregnancy producing a living child. If the symptoms of abortion have made their appearance immediate active measures should be takens to prevent its progress

The patient must go to bed remain quiet free from annoyance in a cool well ventilated chamber. an anodyne combined with a mineral acid may be administered in small doses frequently repeated. if much irritability exist blood-letting and purgatives are proper

When these means will not allay the symptoms and the progress of the

miscarriage cannot be contro-
-lled we must assist nature
in the proces. . The symptoms
indicating that such ajsistance
is required are rupture of
the membranes, excejsive-
hemorrhage, continued sev-
ere pain without progress
of the proces. apprehension
and despondency. Dr
Meigs says that in such
cases the tampon is most
efficacious and has never
failed in his hands. It is
a most certains means of
evacuation of the contents
of the stomach uterus,
but as it is capable of con-
-verting an open into a
concealed hemorrhage, re-
-quiring great discrimin-
-ation in its use.

Venesection is also very use-
-full, likewise cold and asp-
-ringent lotions to the vulva
acid drinks. opiates and a
recumbent posture. If
the membranes have ruptured
and the procefs still lingers
with a rigid os and cervix
- the remedies used are the
lancet, ipecac or antimony
in small doses and chloroform.

Sometimes it is necefsa-
-ry to remove the foetus
or placenta from the
vagina when lodged
there. and great care
should be exercised to
examine all discharges
that they may not pafs
away unobzerved and
unnecessary treatment
occur. If the placenta

be simply retained the abortion forceps may be resorted to but if it be adherent the tampon is most available.

The after treatment is rest and attention to such indications as may be present.

The second class of abortions claims our attention sometimes from ignorance or carlepness of the mother, sometimes from her misfortune

The symptoms and treatment are sufficiently, indicated, in the preceeding pages to require further comment

The third class of abor-
-tions - Criminal - are per-
-haps by far the most fre
-quent but they rarely come
under the cognizance of
the physician except in a
medico-legal point of view

The general intelligence
and fast habits of our people
of all grades in society. the
facility with which knowledge
is disseminated of evil as
well as good and the pres-
-ence of publicly professed
abortionists conspire to render
our great citys little short
of Paris regarding the vir-
-tues and character of social
life. There are two general
methods practiced to procure
abortion, viz, the use of drugs.
and violence, The most

prominent among the drugs are Oil Tanzy. Oil Savin. Opii Ergot. Aloes and a variety of others none of which have the least effect on the uterus other than by reflex action

She Golden pill compounded of aloes. Ergot and Myrrhe is much used and will not unfrequently effect it by its irritant action on the bladder and rectum, The effect of aloes alone when taken in large quantities for this purpose is terrible, producing ulceration and sloughing of the rectum of so grave character as to almost entirly resist treatment. Dr David Uhl consulting physician to the coroners of New York mentions some of the results

of drugs taken to procure abortion as follows, A California Widow bought at a Drug Store Oil Tanzy, ℥ß - which as a poison should not have been sold by the druggist without a prescription - and took the whole of it at bedtime, a few moments afterwards complained of a cold sensation over the whole body with vertigo syncope ensued and death followed in about ten minutes At the post mortem examination - the limbs were found rigid, pupils contracted, abdomen considerably enlarged, a dissection showed the lungs to be congested heart empty, stomach containing a small quantity of,

greenish coloured fluid having a strong odour of tanzy. intestines enormously distended with gas and presenting both externally and internally a green colour similar to that of Oil of tanzy. On examination the Uterus showed not the slightest sign of pregnancy.

A girl 18 or 20 years old - ten weeks advanced in pregnancy took in one day ergot ʒ ij ß and during one week ʒ j. It had the effect of producing violent gastritis and the constitutional symptoms of poisoning but had not the slightest effect on the uterus. Violence is applied in various ways to effect this purpose, jumping the rope, riding on horse-back.

abdominal friction, irritation of the vagina, rectum or nipple, electricity, venesection, dilatation of the os, cervix or corpus uteri by, sponge tents, instruments or injections of water and also by rupturing the membranes in various ways, usually with a sharp pointed flexible catheter or the uterine sound.

The result of this operation to the general health of the mother is frequently disastrous, locally, it has a tendency to create malignant disease cancer, ulcerations and engorgements, it renders a woman unfit to perform the duties of a wife or to become a mother, Its effect is terrible morally speaking,

and as a necessity the intellect sympathyses and thus deeper and deeper sinks the scale to a most miserable level. The proportion of fatality is entirely in favor of an operation by violence, seldom does a death occur as the immediate result of violence, and I am informed that during the last three years but two cases from this cause have come before the Coroners of New York

The subject which I have chosen from the many topics which present themselves on this occasion is wounds of the arteries with hemorrhage. But first it may be well to say a few words with regard to the mechanism and use of these organs.

The arteries consist of three coats which are 1st the external or cellular. This coat is firm and resisting under the application of the ligature being in strength superior to the other two which follow.

2nd the middle or fiberous, its fibers are arranged circularly in which direction they readily yield to a ligature.

3rd the internal or serous coat this is a very thin delicate and transparent lining to the arteries. Its inner surface is quite smooth, thus avoiding friction in the passage of blood through them.

this also yields very readily to the application of a ligature -
The arteries are supplied with [illegible] vessels called basa vasorum - and also more or less with nerves - the whole is surrounded with a mass of cellular tissue forming what is called the sheath of the artery -
The use of the arteries is to convey the blood from the heart to the different parts of the body - ramifying as they do through all the tissues dividing and subdividing into minute branches and capillaries where they anastamose with the minute branches of the veins through which the blood returns to the heart -
Each pulsation of the arteries corresponds with that of the heart, each contraction of the heart forcing from its cavity through the arteries a quantity of blood causing the pulsation which is felt under fingers

A wound of the arteries may be caused by any thing that will wound the soft parts around them, and in the same manner the wound may be incised, lacerated or punctured. Though a dull puncturing instrument will sometimes around the vessel to one side and thus leave it uninjured instead of wounding it symptoms. In a wound of an artery the most prominent symptom is hemorrhage, more or less profuse according to the size of the vessel injured, size and form of the wound, and activity of the heart. Most usually [illegible] if the artery is of much size - from the nature of its coats they remaining open - & not collapsing as the veins do - and [illegible] the perpetual flow of blood from the [illegible] hemorrhage will be free - the [illegible] will [illegible] be of a florid color, lighter than venous blood and as a general rule it will flow out in successive jets, corresponding with each pulsation - it may however flow in a continued stream from the orifice of the

lower portion or extremity of the artery -
So also a vein may at times be seen to
send out our blood pressatum - in consequence
of its close proximity to some artery - there
may be therefore a little difficulty in some
~~in some~~ instances in deciding whether the
injury be of the one or the other - this
may be readily ascertained however by making
presure in track of the vessel on the limb
above the wound - when if it is of an artery
the blood will cease to flow, but if of a vein
the hemorrhage will be more profuse, as the
presure opposing the retrograde current of blood
through the vein will cause it to flow out
through the wound -
Temporary means for restraining hemorrhage -
Nature has some modes of temporary relief -
In the first place the ends of the arteries if
divided will contract more or less making its
orifice smaller - and then too it retracts so
as to bury itself within the cellular substance
which surrounds it -

And again the blod will coagulate in the wound and thus plug up the end of the artery so as to restrain the farther exite of blod from it - And so too frequently faintness comes on, and this both checks the flow of blod from the heart - and increases a tendency to coagulation in the wound -

But it may not be best to wait for nature to accomplish her work in all cases - especially if hemorrhage should be free - And temporary relief may be had while ~~may be had while~~ permanent is being prepared for, by presure made with the finger over the open mouth of the vessel - that is when the wound is sufficiently large to admit of this - So also presure made over the track of the artery where it passes over a bone above the wound - as of the femoral artery where it passes over the pubis for a wound in the limb below will prove effectual - Or a handkerchief may be carried around the limb and tightly

twisted with a stick passing through it, if a tourniquet is not at hand which would be more convenient still - the handkerchief when employed, must be applied, if to the arm, above the elbow - if to the lower extremity above the knee - that is to say to that portion of the limb where there is but one bone - as the two bones would be liable to take the pressure off from the vessel - It would be well to apply under the handkerchief and over the artery a compress if there is one at hand and time to apply it. A punctured artery will bleed more profusely than a divided one - as the ends are not allowed to contract - or to bury themselves within the surrounding parts - Lacerated arteries will bleed less than incised ones, as they immediately retreat within their sheath - and so too the raged ends of the vessel retain the blood and allow it to coagulate - If the wounded artery is a small one although it may bleed briskly for a time yet it will

generly be soon restrained by Natures agency - and this may in some cases prove permanently effectual - and if the artery be of some size even and the wound in it is a small one - it may be firmly closed with coagulated blood, and the patient survive - But what would be more probable and especially if the wound was of much size - is that the patient would very soon become exhosted, and death would be the almost immediate result unless artificial aid is rendered - In some instances the temporary relief which nature affords is but the foundation of a fals hope - for in the course of a few hours, when the heart has recovered its usual activity and faintness has passed off, secondary hemorrhage will come on - and in this way - hemorrhage and a suppression of it may alternate until the patient becomes exhosted and death is the result -

Of the permanent means of suppressing hemorrhage

the application of cold as of cold water cold air or Ice - will sometimes prove efficient where the vessels are small or where there is a general oozing from a surface - by causing contraction and increasing coagulation - in this case the wound must be kept open until the hemorrhage has ceased. But the safest, best, and most usually employed means is the application of a ligature - for this purpose a variety of material has been used - yet perhaps it is of little consequence of what the ligature is composed so long as it possesses sufficient strength - it should be small and smooth the smoother it is the better ie, if it possess the necessary strength - as it will the more readily divide the inner coats of the artery - which is a matter quite desireable - and it must possess considerable strength to be capable of being drawn tightly enough for this - Some have preferred a ligature of animal substance thinking that it may be more easily in the wound and cause less inflammation

than a common thread - and it is thought by some that the ends of the ligature can be removed leaving nothing but the loop around the artery, and that this will be absorbed causing no inflammation - in this case the wound can be immediately closed, and will most likely unite by the first intention - But absorption does not always take place in some cases inflammation and ulceration will come on - and an abcess will be formed and this will continue until the bit of ligature which was left in the wound is discharged with the matter from the abcess - The animal ligatures which are used are silk, those formed of the untoned skins of some animals as the kid or deer, the fibers of animal tendons etc, Our professor of surgery informs us to be uses almost exclusively and prefers smooth inner thread -

Mode of applying a ligature - in applying a ligature to a healthy artery there is no danger

of dividing the external coat with almost any amount of source - the ligature should be carried around the artery in a directly transverse direction - and a single straight knot tied without lifting the artery out of its place, but with the thumbs carrying the knot down to it - and a second is to be tied in the same manner, when the external coat is contained within the ligature, while the cut edges of the inner coats being in opposition will unite by adhesion - the blood in this part of the vessel coagulates and it finely becomes changed into a fibrous cord - A ligature should be applyed immediately to the vessel not excluding any thing besides - this can be easily done with the large arteries, but with the small ones there is more difficulty and with these it is not of so great importance the accompanying vein and nerve should never be wounded or injured in any way - But the ligature should be applyed to the artery alone - and immediately at the place

where the vessel is in contact with the surrounding cellular tissue, the end of the artery may be drawn out with the forceps, or tenaculum, and the ligature applied. And when thus applied it will retract so as to bury itself at the place of ligature in its surrounding sheath. In the use of the tenaculum it should be carried through both sides of the vessel, for if not, one side may be drawn down farther than the other. And thus the ligature be applied to only a part of the artery and secondary hemorrhage will very likely follow. A ligature should not be applied to an artery near where a branch is given off. Nor to a branch near to the main trunk. As in this case the blood will not coagulate. And therefore when the ligature comes off secondary hemorrhage will be the result. A ligature should if possible always be applied to the artery at the place of the wound and not by insitions above it. And so too there will usually need

to be two applied one to each extremity or if the artery is only punctured, one of each side of the wound, and then the vessel divided. When a ligature is applied one end should be cut off as near to the artery as can be with safety the knot and the other left to hang out of the wound.

In a varying period from five to eighteen or twenty days according to the size of the vessel separation will take place and the ligature may be removed. At the end of some days according to the size of the artery gentle traction may be made. This should not be forceable, but three or four times in twenty four hours. Working it a little gently will prove effectual in dislodging it even when the vessel lies deep.

In some cases where the artery is not easily obtained by other means the curved needle needle may be used in this case we must necessarily include other matter than the artery therefore this is not the best mode when the

forceps or tenaculum can be used -
It will be seen sometimes that the blood continuing to flow through the coagulum will form protruding orifices which resemble those of the arteries - and which have been mistaken for them - but a ligature cannot be effectually applied to them - and therefore the coagulum must be removed - the mode of doing this if the wound is sufficiently large is by carrying the fingers under it and throwing it out in a mass - and thus saveing the pain and perplexity of washing it or picking it out bit by bit with the forceps - then the arteries may be found and secured
Torsion - or twisting and lacerating the end of the artery has sometimes been employed this can be done by fixing the artery at a little distance from the end with a forceps and then with the second pair twisting and lacerating the end of the vessel - this mode of treatment may answer for small vessels but

would be really appropriate for large ones - the artery may be a deep one and the wound so small as to prevent access to it - this can be remedied by making the wound larger with insitions - But it would be well to avoid this when it can be done and in some cases pressure may prove effectual - when this is employed a graduated compress should be applied with its apex to the wound - and there should be a compress applied also along the track of the artery above and the whole limb should be enveloped in a bandage to prevent the accumulation of blood in it - it will be well to keep the wounded part in an elevated position - A variety of stiptics are used - some of them act by the contraction of the vessels which they cause - others by their tendency to produce coagulation of the blood - some it is said by their mechanical obstruction to the flow of blood - and some by their production of inflammation and granulation and thus

bringing on adhesion of the opposite sides of the vessels - for these purposes all the vegitable astringents have been used as also the mineral - the muriated tinct of Iron is beneficially injected into a wound in some cases - or the nitrate of silver may be used - ~~or the acetate of lead~~ - and perhaps common alumen is as good as any of these remedies - this is often effectual in those cases where the wound and artery are both small - a plug of alumen cut of the size and shape of the wound and introduced so as to reach the bottom and then a compress and bandage applied over it to sustain it in its place - one advantage of this is that it will lie easily in the parts - and will not produce inflammation - this remedy has a tendency to contract the tissues - and besides this it causes a peculiarly hard coagulum of blood to be formed which restrains the hemorrhage -

A wound or puncture of an artery will not heal usually - in this case the wounded vessel should be divided - and then its contraction may cause its hemorrhage to cease -

The actual cautery has been used by some - where the wound is deep and the artery difficult to get at - but this is not to be practiced generally or except in extreme cases - when employed the iron should be of sufficient size to cover the whole breadth of the artery - hot to a red heat and when applied kept in motion to prevent adhesion of the parts to it

When any new theory is advanced, that is in any manner, opposed to preconceived opinions, or that has the character of an innovation, there are those who are always ready to denounce it as absurd, as being the offspring of a futile imagination, or a hobby upon which its promulgator wishes to ride into distinction. — It appears contrary to the natural course of the mind to test its truth, or to enquire, whether it has for its object the amelioration of many natural ~~condition~~ or accidental condition. — And we find among its most strenuous opponents, men who stand high in science and letters, thereby giving force to their prejudgments, and swelling the tide

that threatens to consign it to oblivion — It is only after it has battled its own course, and produced incontrovertable evidences of its truth, that it receives the approval, to which by its virtues, it is justly entitled.— This is true not only of the induction of anaesthesia, but also of all the most humane, and valuable additions, that have been made to the Science of medicine, and the practice of Surgery, during the last half century.—

Who can refuse to commend the wide famed Dr Jenner, for the fortitude with which he withstood, the opposition, that assailed his doctrine of the vaccination; or restrain his gratitude for the boon he conferred upon the sufferings of his fellow-creatures, when

we see the astonishing diminution of the deaths, that annually occur from small pox.—

The yearly mortality that attended this disease in England, antecedant to the introduction of vaccination, amounted to about 40,000 individuals, while now, only about 9000 are computed as being the yearly victims of this malady.— In the same ratio, out of a population of 300 millions, a little upwards of 600,000 less, die yearly than would have died from this disease, prior to vaccine inoculation.—

For this improvement in medicine, which has placed in our hands, a defensive weapon, against one of the most loathed and dreaded forms of disease, we are indebted to Dr Jenner, and we find

no medical man, of this day, but, who is willing to acknowledge, that his discovery is not the less remarkable for its happy results, than for its simplicity, and the safety with which its success is accomplished. Yet at the time of its proposal, & for many years subsequent, it was encountered by the ridicule of many of the most distinguished members of the profession; and their tongues as well as their pens were employed in its opposition. The King was intreated to suppress "the destructive practice of vaccine inoculation", Parliament was petitioned to pass prohibitory acts, Colleges of Physicians were solicited to interpose their influence, & even the people were called upon to discountenance the practice.— But not=

-withstanding this formidable
array of opponents, fully convinc-
-ed as they were of its inutility,
and apprehensive of the horrible
consequences, that would result
from the introduction of vaccine
matter into the blood:- notwith-
-standing the strenuous manner
in which they declaimed against
it, yet its genuine virtues became
apparent, and soon hushed in-
-to silence the loud clamor of
its antagonists, and clearly ex-
-hibited the falsity of their con-
-clusions.- So when the induction
of aetherization in Surgical cases
was proposed, a warfare of opin-
-ions was commenced, in which
its advocates, as well as its assail-
-ants, concentrated the energies of
their minds, the one to establish
its advantages, the other to por-

-bray its inapplicability. Though this warfare has not ceased, yet the balance of power appears to be on the side of the employment of anaesthetics.— It will not be my province on this occasion, to enumerate the various objections, that have been adduced against their employment; but simply to state in concise terms, the articles Employed, the mode of using them, their effects, and statistics, showing the less fatality attending capital operations, in Surgery under their use.

Various substances have been used to produce anaesthesia. Without noticing the mandragore spoken of by Pliney, and other ancient writers; the inspiration of Carbonic acid gas, as proposed by Hickman in 1828, of nitrous oxide

by Davy in 1800, I will proceed at once to the substances, now generally employed.—

Sulphuric Aether was probably first used in this country, for the production of anaesthesia in Surgical operations.— Prof Samuel Jackson of Boston, was one of the first advocates of its use in this manner, though the restoration of this idea, in modern times, belongs more justly to the lamented Horace Wells, or Dr Long of Georgia.— Soon after the employment of this substance, was made known to the public, the attention of Prof J.Y. Simpson of Edinburg was directed to it, and after some trials of its virtues, he conceived the idea, that some more powerful, & as equally a safe, and

efficient agent could be devised. He was anxious to obtain a substance, that could produce the same effect, "devoid of the disagreeable and persistent smell of Sulphuric Æther, & its tendency to irritation of the Bronchii, during the first inspirations, and the generally large quantity that was required to accomplish the end had in view". After trying various substances, his attention was finally directed to the perchloride of Formyle, or Chloroform, and he found it infinately more efficacious, than any of the others he had employed." The advantages of Chloroform over Æther are numerous.—

First.— A much less quantity of Chloroform, than of Æther, is required to produce the anaesthetic

state — From one to two drams generally suffices —

Secondly — It acts more rapidly and effectually, and is generally more persistant — A few inspirations most always produces the effect — now in the administration of other narcotising agents, there is a period of time that elapses, during which a state of Excitement is set up — whereas in the use of this article, it acts so instantaneously, that the time of the Surgeon is saved, and this stage of excitement is curtailed, or actually abolished —

Thirdly — It is more agreeable in its odour, & more pleasant in its effects —

Other advantages which it possesses over Æther, might be enumerated, but these I deem suf-

ficient to entitle Chloroform to the preferance.—

The last article I shall mention, is Chloric Aether,— This substance is somewhat different from Chloroform.— It is said to excite the pulse less, & is not so liable to be followed by head-ache. In this country we know that this substance is employed, in some localities with peculiar partiality.— In Boston and its vecinity, it finds its strongest advocates, being conceived by them as less liable to produce fatal consequences.— I have seen both Chloroform & Chloric Aether administered in a few cases, and the conclusion to which I have arrived from my comparatively limited observation is that the former is more speedy, and persistent in its effects than the latter.—

I have thus indeavoured to enu-
-merate in as brief terms as pos-
-sible, the three agents that are
generally employed to induce the
anaesthetic effect.— Sulphuric
Aether is now but seldom used,
having been abandoned for more
efficacious substances.—

It would be proper in this
place, to notice the Chemical
composition of these various
articles, but as we find them
in our drug Stores, already prepa-
red for use, I shall decline enter-
-ing into the consideration of this
subject.— It becomes me now
to notice their modes of admini-
-stration.— Immediately upon the
employment of these substances; nu-
-merous contrivances were devised,
by which to administer them.
Sulphuric AEther may be con-

-veniently employed by means of a large Sponge.— An apparatus was contrived by which Chloroform and Chloric Æther might be inhaled through the nostrils, based upon the idea that the nostrils were the proper channels of inspiration.— Dr Hitchcock invented a very simple and complete instrument, (if I may use such a term), for then inhalation through the mouth. Some have recommended a linen handkerchief to be folded in the form of a funnel or glove, and the anaesthetic to be poured into it, and the open end applied over the mouth of the subject.— A large class of Surgeons, employ simply a handkerchief, without being folded in the manner described, sprinkling about one or two drachms upon it, and holding

it at a little distance from the mouth of the patient, who is to inspire the vapour.—

Now some have contended that when fatal consequences result from the employment of these agents, that death is generally produced by asphyxia, but it appears to me that their best effects are generally produced when the respiration is steadily maintained, and this is always the case, when a quantity of pure atmospheric air is combined with the athereal vapour.— For the want of any apparatus that will combine oxygen with the anaesthetic agent, I conceive that the mode of administration last mentioned is the most preferable, admitting as it does the entrance of air, in combination with the vapour. Some patients may require more, others less

than the quantity mentioned to produce complete anaesthesia.- We should be careful not to wet the part of the handkerchief, that may come in contact with the mouth, especially if we use chloroform, on account of its caustic action.- If it is necessary to maintain the action for some time, it will be proper to besprinkle the handkerchief again, when the first quantity is evaporated.- The patient should be placed on his back in a recumbant posture, and advised at first to take full inspirations; all noise and excitement should be strictly forbidden.- Attention to these simple measures, at all times watching the impression on the circulation, is important in the cases in which we administer either of the substances I have mentioned.- Their Physiological ef-

fects will next engage our consid-
eration.- They exert an anodyne
influence more powerful than
any other agent, though more
transient in its duration; if con-
tinued for a sufficient time, com-
plete insensibility will ensue, their
action being on the sensorium,
rather than on the merely sensitive
nerves, so that the patient may
endure the most painful surgical
operations, without being conscious
of any pain.- Where their action
is less prolonged, or a less quantity
of the vapour is inspired, sensi-
bility will only be blunted, & the
patient may make movements,
and utter expressions indica-
tive of pain, but when conscious-
ness is restored, he has no recollection
of having suffered. The action
of the vapour is obviously narcotic,

being more speedy and transient than either Alcohol or opium, because it passes more freely into the circulation, and being conveyed by the blood, acts immediately upon the brain.- Some have been peculiarly precise in dividing their effects into stages, but I will content myself by giving a sketch of the phenomena witnessed during their administration.- After a few full inspirations, a feeling of warmth and excitation is felt in the chest, radiating to the extremities.- The pulse at first is quickened; in some cases the mind remains inactive, whereas, in others a wild and incoherent delerium sets in.- The patient indulges in a train of thought, totally disconnected from

any thing by which he is surrounded. All the symptoms that attend the earliest effects, are such as evidence considerable nervous exaltation, and general excitement.

Efforts will be made by the subject, to remove the handkerchief from his mouth, which the attendant must be careful to resist. At last complete insensibility supervenes. This condition is succeeded by complete muscular relaxation, If the arm be raised it will immediately fall. The respiration becomes stertorous. The pulse sinks below the natural standard. Sometimes the patient goes into a cataleptic state; more rarely the muscles of voluntary motion are in a state of clonic Spasm, Convulsions have in a few instances resulted before complete insensibility had been

produced, and for days subsequent to its inhalation, the subject has complained of dizziness, nausea, fainting, and great depression of the strength.-

These are the chief symptoms that follow their administration. Bearing in mind the speediness of their action, & the fact that fatal consequences have resulted from their employment, we should be careful in their administration, watching the influence made on the circulation, and nervous system, & immediately remove the anaesthetic from the patient, as soon as any unfavorable symptom shall arise. In some instances it may be necessary to sprinkle the face of the patient with cold water, also applying it to the head, & administer ammonia and other stimulants internally, to assist in arousing him from the deep depression into which he had fallen.- I might mention that

I have seen a number of patients considerably nausiated, and some vomit profusely on emerging from the anaesthetic state.-

It might be asked what ends are designed to be gained in Surgical Operations by administering anaesthetics.- One great end to be accomplished, is to produce muscular relaxation, in the Reduction of dislocations.- I have seen an instance, in which the head of the humerus had been in the axilla for three weeks, attempted to be reduced by the ordinary method of manipulation, with an unusual degree of traction, but the effort failed. As soon as Chloroform was administered to such an extent as to produce complete muscular relaxation, it was returned into the glenoid cavity with apparent ease.

"They are also employed to arrest the

sufferings attendant on deep probing, and other painful but necessary modes of diagnostic examination and dressing, but their chief use is to annul the pain of the various operations by the caustic, ligature, & knife".—

With appending these few remarks in reference to their uses, to what I have said of their effects, I will now take up the last point, I intend noticing; and a few words will conclude what I have to say of the less fatality attending surgical operations under the use of anaesthetics.—

It seems strange that men, should deny the right, or necessity of relieving or averting pain attendant upon these operations, but such is the case. It would be interesting to enquire into the reasons stated why

this should not be done, and if possible answer them objections, and advance causes, why this end should be accomplished.- Let what the philosophic Bacon says, however suffice, "I esteem it the office of the Physician, not only to restore the health, but to mitigate pain and disease."

If there were no greater end accomplished by the use of anaesthetics, than the mitigation of pain, this alone would induce us to employ them, but the statistics that have been collected, show that fatal results are less liable, to follow the more capital operations in Surgery, when an anesthesia is induced, than without.-

I must assume the liberty, on this point, of condensing some of the observations of Simpson.[E]

"The major amputations of the limbs, including those of the thigh, leg, and arm, are generally fatal in Hospital practice, in the proportion of about one in every 2 or 3 operated upon." The same operations performed upon the same class of cases, in an anaesthetic state, present a mortality of one in four only.— The following is Simpsons table, marked, No. VIII

Reporter	No of Cases	No of Deaths	Percentage of Deaths
Parisian Hospitals. Malgaign	484	273	57 in 100
Glasgow. Lawrie ——	242	97	40 in 100
General collection Phillips	1369	487	35 in 100
British Hospitals. Simpson	618	183	29 in 100
upon patients etherized	302	71	23 in 100

From this table we perceive that, if we take the average mortality attending amputations, in the Pari-

sian Hospitals, as reported by Malgaigne, in which 57 in 100 died, and compare it with those in which anaesthetics were employed, in which 23 in 100 died, we find that the mortality was 34 in 100 greater. Or if we take the British Hospitals, in which 29 in 100 died, we find that where the patients were put in the anaesthetic state only 23 in 100 died.

But take simply the amputation of the thigh, which is deemed more fearfully fatal in its results, than any of the justifiable operations in Surgery, and we find from the reports of the British Hospitals, that out of 284 cases 101 died or about 38 in 100, when anaesthetics were not employed, whereas in 145 cases, only 37 died, 25 in 100, in which the patients were placed under

the influence of an anaesthetic. From Simpson's Table Marked No 9, I find that 11 more in 100 will die from this amper-tation, without the use of an-aesthetics, than would die if they were employed.-

This article might be extended to an almost indef-inate extent, by deducing re-marks from these tables, but what I have said is sufficient to prove, that anaesthetics, render fatal results less liable to follow, opera-tions in Surgery.-

Luther C. Cox.
Easton Maryland

On the

Function of the Liver.

—x—

The Liver is an organ, which, in one form or another, is more constantly present throughout the whole series of the animal creation, than any other which is of a glandular nature. In the vertebrated animals it is always well developed, and in the human foetus it forms a large proportion of the whole body. Its importance, then, as an organ of special function, cannot well be over-estimated.

Before treating of the peculiar function of the liver, it will be well to consider, though somewhat briefly, its minute anatomy.

The liver, besides being divided into the greater and lesser lobes, the lobulus Spigelii, the lobulus quadratus, and the lobulus caudatus, - is still farther divided into lobules, which lobules, with with their vessels and ducts, make up the whole substance of the organ. This lobulated structure can be distinctly seen in the common beef liver when it is cut or torn across. In the human liver the lobules are about as large as millet seed.

The lobules are attached to each other by a membrane which also covers in each separate lobule, and affords a lodgement for some of the minute vessels and ducts. In the human liver this membrane is quite delicate, but in some other animals, as the pig, it may be seen very distinctly. It is called the capsule of Glisson, who first described it.

Between the lobules lie branches of the vena portæ, the hepatic artery and vein,

and the hepatic duct; from these the lobules derive the plexuses which make up the greater part of their substance. The structure, then of a single lobule, when once fully understood, gives us an idea of the essential character of the whole organ.

The Portal Vein - is formed by the convergence of the veins which receive the blood from the stomach, intestines, & whole chylopoietic viscera generally - (It probably also receives the blood which is conveyed to the liver for purposes of nutrition by the hepatic artery)

It, like an artery, gradually subdivides into smaller and smaller branches, and at last, forms plexuses, which lie in the interlobular spaces and freely inosculate with each other throughout the whole liver.

These vessels have been called the inter-lobular veins. they enter the capsules of the lobules, covering their whole external surface, and then enter the substance of the lobules, when they are called the lobular veins.

Where lobular veins converge toward the centre of the lobules. Into their ultimate ramifications terminate in those of the hepatic or intra-lobular veins.

Between the meshes formed by these plexuses the minute twigs of the hepatic duct are distributed - anastomosing with each other so as to form a net-work in which their terminations are ultimately lost, as it were.

The Hepatic artery distributes its branches to every part of the liver, supplying the walls of other vessels. And the capsule of Glisson. Its principal distribution, however, is to the lobules, which is effected in much the same manner as that of the Vena portae. by spreading through the inter-lobular spaces. They enter the lobules in company with the biliary ducts, and are probably distributed upon their walls. It has been a matter of much dispute with the best microscopical anatomists

whether the ultimate ramifications of the hepatic artery terminate in the hepatic veins or in the portal veins capillaries, but as experiments have shown that the hepatic veins cannot be filled by any injection into the hepatic artery, while a very fine injection into the hepatic artery will find its way into the portal plexus, we may conclude that their communication is with the vena portæ. This fact being proved we may perceive that the blood which the hepatic artery supplies to the liver can have the bile secreted from it only by passing into the portal plexus.

There is an extensive communication between the portal plexus and the hepatic veins, an injection into the former readily finding its way into the latter. So that it would seem that these three systems have a kind of indirect communication with each other, though not a very intimate one.

The Hepatic Vein - sends branches to each lobule which occupy their centres - and are called the intra-lobular veins. They terminate in the large trunks which pass along the bases of the lobules and collect from them their venous blood. The main trunk of the hepatic vein terminates in the Vena-cava-ascendens.

The Hepatic duct - ramifies between the lobules much like the ~~portal~~ vein - but with much less anastomosis, its twigs enter the lobules and form a network which constitutes the principal portion of the substance of the lobule, and in which they terminate by anastomosis. The network formed by this anastomosis is lined with secreting cells, called biliary cells upon which seems to depend the secretion of the bile which is poured out by the liver.

Having thus briefly considered the special anatomy of the liver, let

us pass to a consideration of its office and function.

Previous to birth, the lungs being at that time inert - the liver is the only decarbonising organ in the body - and nearly the whole of the blood which is returned from the placenta must be passed through this organ before it is fit to be sent by the action of the heart to every part of the body - hence the reason why the foetal liver is proportionally so much larger than that of the adult - having a much greater task to perform - the secretion of bile is, no doubt actively taking place during foetal life - the substance called meconium - found in the intestines of the newly born infant being found to be nearly all of a biliary character.

That bile should be secreted requires certain conditions, the most important of which is, perhaps, the character of blood which is sent to the liver - we have

seem that there is reason to believe that the blood supplied by the Hepatic artery is not directly concerned in the secretion of bile, but that it first serves for the nutrition of the liver and then passes into the portal system - (as does the blood from the chylo-poietic viscera) and forms a part of the mass of venous blood from which the bile is secreted by the biliary cells. This view is demonstrated by the experiment of tying the vena portæ in animals. when it will be found that the secretion of the bile still continues though in diminished quantity. Several mal-formations of the vena portæ which here from time to time occurred in the human subject have shown the same fact.

The fact that the normal secretion of bile is effected from the venous blood goes strongly to show that one great object of its separation is the removal of a portion of the product of the disintegration of the tissues.

The position of the liver with regard to the mesenteric vessels is such that the alimentary substances which they contain must be submitted to its action, and over them it probably exercises a depurative and assimilating process, and while it assists in preparing for nutrition certain azotised substances which are capable of being applied for that purpose, and also transforms non-azotised substances into compounds which more readily undergo combustion, and are thus better fitted for sustaining the heat of the body by respiration, — it also eliminates certain substances, which, if they found their way into the general system would prove extremely deleterious, this last effect it exerts upon copper-arsenic and some other poisons.

When from any cause the secretion of the bile is suspended, the substances at the expense of which it

is formed are retained in the blood and accumulate. Their excrementitious character is shown by the disturbances to the general health which ensue. When the secretion of bile is entirly suspended, sudden jaundice ensues, the nervous system becomes prostrated, as if by a narcotic poison - and the patient speedily dies. The symptoms are the same though not as violent when the secretion is diminished though not entirly suspended.

It is highly probable that the partial retention of the bile produces that derangment of the brain and nervous system which we so often see accompanying disorder of the digestive organs. Persons who suffer from this cause should have their amount of hydro-carbonaceous food reduced, and be made to take active exercise, which by promoting the respiration would increase the elimination of a superfluity of this kind. This plan of treatment

would probably be much more efficacious than the ordinary method of temporarily exciting the liver to action by mercury and other medicines of that nature.

The mere reabsorption of fully formed bile into the system, as in common jaundice, does not act nearly as injuriously as the retention of the materials at the expense of which it is formed. The ductus communis may be entirely obstructed and the patient live for many months. and much of the disturbance which is seen under such circumstances is probably due to the digestive derangement produced by the stoppage of the flow of bile into the intestinal canal. It would therefore appear that the liver not only separates certain substances from the blood which passes through it, but also exercises a transforming agency upon them - - -

Bile is a viscid liquid of a greenish color. or. when much diluted of a yellowish tinge. - with a very bitter taste. It forms a

frothy solution with water like soap. It consists of about twelve per cent of solid matter nearly all of which is composed of substances peculiar to the bile, and known as "biliary matter," which consist of several organic acids, and salts of soda and lime. 632

The office which the bile performs after finding its way into the intestinal canal, remains now to be described.

The separation of the bile from the blood during intra-uterine life, can of course have no reference to the digestive process, which is not then taking place, and the secretion of the liver is probably all of an excrementitious character during this period.

The bile is poured into the intestinal canal at the duodenum, and from the constancy with which, in nearly all animals it is poured into the upper part of the intestinal canal, we infer that it is not purely of an excrementitious character, but serves for some important purpose in the digestive process. What this pur-

-pose is, this is not easy to state with precision.

When the bile is tested out of the body, it is found to exert no action upon starchy substances, nor upon cane sugar, until after a lapse of time when it converts it into lactic acid. it also has no action upon albuminous substances, in this its action appears to be different from that of the gastric juice and other digestive fluids.

By mingling fresh bile with chyme it is found that a kind of precipitation takes place, the albuminous matters being rendered insoluble, and the chyme is preserved a long time from putrefaction, and a fermentation is entirly prevented. This anti-septic effect is probably one of the offices which it performs in the intestinal canal.

The bile stimulates the action of the intestinal glandulae, and the peri-staltic action of the intestines themselves as is shown by the constipation which ensues when the flow of the bile is diminished by an obstruction in the ductus communis, and the diarrhea-

consequent upon its increase. Inspissated ox-gall is also known to produce purgative effects

The bile as is well known accumulates in the gall bladder from whence it is poured when stimulated by the presence of food in the intestines. the flow of bile not taking place when the intestines are empty - as may be shown by experiment.

If we now bring all the facts together which are at present known, we must come to the following conclusions with regard to the function of the liver:—

First - That the liver is principally an organ of excretion, whose design is to remove from the blood those hydro-carbonaceous substances produced from the disintegration of the tissues, which cannot be converted into sugar and fat so as to be eliminated by the respiration

Second:- That in performing this office it converts these excrementitious matters into substances which have a certain utility in the digestive process, and which, after ministering to that function

are capable of being again absorbed and of undergoing oxidation whereby their greater part is excreted in the form of carbonic acid and water by the lungs, and the remainder by the kidneys.

Third - that as well by the change in the constituents of the blood itself as by the separation of the biliary matter from it and by its operation upon the alimentary substances, the liver assists in preparing materials for the combustive process - for it converts all saccharine matters into "liver sugar" (~~C H O~~), the form which is best adapted to oxidation. It also exercises a similar transforming power upon fatty matters producing the peculiar "liver fat". In all the above actions the liver appears to be, to a great extent subservient to the function of respiration - furnishing about one twelfth of the whole amount of hydro-carbon eliminated by that function.

Finally the liver probably also assists in the assimilation of the tissue-forming materials which have been recently absorbed from

the stomach and intestines - converting the raw albumen into a more suitable form for transmission through the system, and even creating fibrin at its expense.

But however much modern investigation has added to our knowledge of this important organ - it is to be regretted that there are still many points both with regard to its structure and function which still remain unexplained. . .

Diarrhoea of Children

This complaint, which comes on in the second summer of a child's life is supposed to arise from dentition. Whether this is or is not the cause - there is not sufficient importance attached to other circumstances which tend to produce the disease. If dentition was the cause - it would be reasonable to suppose that it would be as likely to occur in the first as in the second summer for the process of dentition has been going on for some time. What then are the causes.

In the first place the heat of the summer acting upon the digestive organs, stimulates them to greater action, and exerts a great influence in predisposing the system to the exciting causes of disease, and particularly, at this time, to the form of disease, which we are speaking of. But if this was the sole cause it would be

apt to act as readily in the first as in the second year. Hence we infer that this is not the cause. There is a change in the habits of the infant about this time (I mean about the second summer) the diet is changed, from taking milk since its birth it now begins to eat and its food is various in kind. With this change of habit, there is a corresponding change in the system. When the child is in the womb, it is nourished by blood from the mother. A change takes place when it is born, instead of being nourished by the blood of the mother it is sustained by the milk which she supplies. When it cuts the breast and begins to eat, another change takes place in its system. We know that all seasons of change in the system are seasons when it is liable to disease. We see this in the turn of life, as it is called, in the female when the flow of the menses ceases, which is often attended with dangerous and sometimes fatal conse-

genius. So also we see the effects of a change when the menstrual function begins in the female. In consideration of these facts - it is not singular that when the child passes from a passive to an active being, the system is peculiarly susceptible to external influences. It is also more liable to disease at this time, inasmuch as it does not receive its nourishment perfectly. The mother is apt to become cold and feeble from constant care, and the nourishment which she affords is of a poor kind and ill calculated to impart health and vigor. In such cases as this diarrhoea is apt to come on. But in treating a case of this kind we must have a regard for the causes which produce the diarrhoea. What is that form which proceeds from an irritating of the stomach, or from food that does not agree (as the saying is) with the stomach. This is the diarrhoea of irritation. Again it may proceed from inflamation, or it may be caused by relax-

ation. There may be retention of irritating matters, and if the discharges are small and frequent it is proper to infer that such is the case. In the treatment of diarrhoea, you must pay particular attention to the condition of the stomach. It may be in a good condition, even though diarrhoea has gone on for some length of time.

The system may be tolerably nourished and suffer very little from the discharge. In such a case, it is apt to be the remote intestines which are affected. It is usually the fact that the more remote the stomach is from diseased intestines, the less liable is it to be affected. However it is liable to become implicated in any trouble of the intestines, from its strong sympathy with those organs.

In treating a case of diarrhoea, in the first place all offending matters must be removed from the stomach. We will know if there are offending matters

by the vomiting which occurs, or by the evacuation of small matters. It is not a good plan to give a great quantity of disagreeable medicines; they are apt to spoil the bowels. This is the fault of continuing small doses of medicine and should always be avoided. Sometimes it is necessary to give the bowels a thorough cleaning out in the beginning of the disease.

Another object in the treatment of diarrhoea is to change the state of the secretions. For this purpose, Calomel is used. But we should give it in very different quantities in different cases. In the case of a child who is infirm and has febrile symptoms and disordered stomach, a full dose would be proper. Under such circumstances, it produces a free secretion everywhere, and relieves the congestion upon which the febrile symptoms depend. So if diarrhoea has gone on for some time and the secretions are deranged a full dose

of Calomel will unlock the secretions and restore the natural condition. In some cases we must give it in small doses. To change the secretion mildly. Calomel given alone would increase peristaltic action in order to prevent this, it will be necessary to combine Opium with it.

The more chronic the diarrhea is, as a general rule, the less must you use with the Calomel. In the case of a child who is worn down with a chronic disease of this kind, give one half or one grain of a grain twice or three times a day. The secretions are sometimes of a whitish hue, and when this is the case, we should give Calomel until a change is effected in them. They will become green after a time and then change to their healthy color. In all cases we should be cautious in the administration of Calomel, a very small quantity will often produce some effect. There is sometimes an idiosyncrasy with

regard to this substance, in the child, though it is not common. It is always best to inquire whether any such condition is present or not. Again some constitutions are not readily affected by Calomel, and a very large dose is required, in order to obtain the effect we desire. Diarrhoea is often exceedingly changeable. It may be suspended for a time. The discharges may be of a mucous or of a serous character: if they are largely mucous it usually proceeds from irritation, if largely serous it proceeds from relaxation. (Though this is not a positive sign.) Another indication in the treatment of diarrhoea is the relief of the irritation. For this purpose we must give Opium; and we should endeavor, not only to remove the irritation, but at the same time remove its cause. This should not be done suddenly - too hastily efforts to produce a rapid check of stools may often do more harm than good: while a more gradual mode of proceeding will

slowly and surely, produce the desired effect, removing the irritation, as well as its cause, and restoring the proper function of the part. Opiates are very valuable remedies given in combination with other remedies. The combination of Opium with Lobelia is much used. Opium is also used in conjunction with Aconite, this is a valuable combination on account of its tendency, to produce diaphoresis. It also has a tendency to produce irritation, therefore we should be cautious in administering it when there is febrile excitement. There are some cases in which Opium cannot be administered on account of the bad effects it produces in such cases, we cannot be too careful in our dose. In connection with Opiates, we should make warm, soothing applications to the bowels. These will often give great relief to the patient. Counter-irritation is much to be depended on when there is any suspicion of inflammation, as being the cause

of the diarrhoea. We can determine whether inflamation is present by simple pressure, though this is not always a sure means. and if we are confident that inflamation is present, we should apply mustard blisters on the abdomen. For this purpose, small blisters in different parts of the abdomen are much better than one large one. Or if we blister, it should not be over a large surface - but here and there over small surfaces.

Astringents are very appropriate and useful remedies in the treatment of diarrhoea. Among these Kino and Catechu are most used. The Kino Combination has been highly recommended. It can be administered in the form of a tea, adding sugar and milk. Kino and Catechu are given with Chalk mixture in the proportion one ounce of the mixture to an ounce and a half of the mixture. Lime water and milk however

been used. When along with the diarrhoea there is inflamation of a low grade - Acetate of Lead is a valuable remedy. This may be used in cases where Kino and Catechu are inapplicable on account of their tendency to produce irritation. Tannin has been used, also Tincture of Muriate of Iron where you wish to overcome relaxation and put the stomach in a better condition.

We should pay very great attention to the diet in the treatment of diarrhoea; but we will often find it very difficult to regulate it in a proper manner.

In considering what the diet should be, our chief object is to find out the wants of the system, and the kind of food which is particularly adapted to the state of the stomach. The system itself will give notice if its wants are unsatisfied, and we should

always be on the look out for any indications of this character. And in our care to nourish the system, we should not forget that too much nourishment will do as much harm as too little. If we give the stomach too much to do, we will be obliged often, in addition to our treatment of the diarrhoea - to remedy a diseased condition brought on by overloading. It is always best to give the food at regular hours. The stomach, like other organs, has its regular time of work and rest, and we should not interfere with a process which Nature originated. If we give food at all hours of the day, we may as well abandon the idea of curing the diseased condition - that we are called upon to remedy.

Acute Hydrocephalus.

Is inflamation of the membranes of the brain and, to a certain extent also of its substance. Syn. Hydrocephalus Internus. Arachnitis. Meningitis Dr. Wood has two varieties. acute Meningitis, which is simple uncomplicated inflamation, and, Tubercular Meningitis, which depends on tubercular deposition, upon, and inflamation of, the membranes of the brain. I shall however consider both, as one disease, as the Symptoms and treatment of both are the same

Causes. One of the greatest predisposing causes of this disease, is, the Strumous, or Tubercular diathesis. Children with large heads, and, delicate frame, with unusual intelligence, particularly if the brain is taxed by over Study; are obnoxious to its attacks

Exciting Causes. external injury; such as falls, or blows on the head; fits of anger; intestinal irritation; Suppressed eruptions, or habitual discharges; difficult dentition; Scarlet fever; Measles; exposure to cold; imperfect nutrition;

close, and, ill ventillated apartments; Surgical operations; or, whatever, tends to excite, shock, or depress, the nervous System.

Symptoms. This disease might be divided into three Stages. The first, is the Stage of inflamation, indicated, by Starting, and grinding of the teeth, when asleep; Waking Suddenly, with a sharp cry of pain, which is characteristic of this disease; When this is not present, there is a almost constant rolling of the head; the child puts its hands to its head, or presses it to the breast of its mother, is annoyed by light, and Sound; is unwilling to be disturbed; The head preternaturally hot. The pupils contracted. Derangement of the Stomach and bowels, is a very frequent Symptom. Obstinate constipation often; Sometimes diarrhoea, with fetid, unnatural Stools. White tongue; Offensive breath; Scanty and high Coloured urine; obstinate vomiting, which, will not be controled by the usual remedies; unattended by nausea, or foul tongue, indicating a Sympathetic affection of the Stomach, coming on when the child is raised, rarely in the recumbent

position. When the fever heads ache, and obstinate vomiting is present, we may safely pronounce the disease; Acute Hydrocephalus

As might be infered from the variety of causes, which may induce this disease; its mode of attack is also various. Dr. Watson decribes three ways in which it may begin

The first and most common way it comes on gradually; with occasional pain in the belly and head, and derangement of the stomach and bowels, which gradually increase in frequency and severity, the pain in the head is of the shooting kind The pulse becomes rapid. The disturbance, and irregularity of the bowels increase, The child sighs frequently looks grave or sad. The eyes are pained by light, so that he knits his brows. This Stage, may last ten or fifteen days, the child becoming daily more weak, and peevish.

In the second form there are no premonitory Symptoms; as they occur only a short time before the disease sets in Suddenly and violently,

with acute pain in the head and high fever; or with convulsions: the face flushed, the eyes brilliant; intolerance of light and sound; pain and tenderness of the abdomen. When it begins in this way, it is very like an attack of small pox, or scarlet fever. There are the same shooting pains in the head with vomiting, the disordered state of the bowels but more obstinate and severe than in the first form

The mode which has now been described although more regular in its progress is not so common as the first nor as the third: which I have yet to describe

The third way in which this disease makes its advances is very insidious; the head symptoms supervene upon the subsidence of some other malady; scarlet fever, small pox hooping cough, and even after painful dentition. In these cases the early symptoms are slightly marked or do not appear at all; The sudden occurrence of convulsions or paralysis are the first evidences that the brain is implicated. This is the most dangerous form of the disease

The second might be called the Stage of Collapse
The pulse irregular, extremely variable, fluctuating,
and often slow. It is difficult at times to determine
when this stage begins, as the symptoms seem to be
mixed up with those of the first stage
With slowness of the pulse, comes on diminished
sensibility, and general heaviness and stupor;
the pupils dilate; the light is no longer troublesome.
The vision is impaired or disordered; if the eye is
closely watched, the pupils will be seen to oscillate
sometimes dilating, sometimes contracting the
light remaining the same; usually followed by
Strabismus. As the pulse becomes slow, it also
becomes full, and more or less irregular; almost
always intermittant. The respiration also becomes
irregular, both as to succession, and length of respira
tion, interrupted by Sighing or Yawning. The Skin
is comparatively Cool; both pale, or general
Sweats, with occasional flushes of the face; blooms
frequently. Almost all the Symptoms assume the
intermittant form. The tongue is moist; the vomiting
has ceased; the constipation less obstinate; the

abdomen contracted; there is usually no disgust for food, it takes whatever is offered. This stage may last a week or two; and what is remarkable all the symptoms may subside, the child is restored to apparent health, and to the parents and friends, is considered convalescing, but in a short time it relapses into a state of deeper Coma than before; and this may occur again

The third, may be called the Stage of Coma.
This Stage is closely allied to the preceding. The Coma is more profound. A disposition to tonic spasms is evinced, in some part of the body. The flexors of the arm or leg contract, and attempts to straighten them are resisted, and appear to produce pain.
This rigidity is sometimes in the muscles of the back and neck, with occasional convulsive movements.
Sometimes there is a cataleptic state of the limbs; sometimes Subsultus tendinum. The circulation is very irregular; one part of the body will be hot and dry, another bathed in sweat. The pulse again becomes rapid, increasing to 120, 140, and sometimes 200 in a minute. The cheeks are alternately pale and

flushed; the child is delirious. The pulse gets more weak and rapid, And the little patient at length dies; either in convulsions or Coma.

You will sometimes look in vain for the accession of the different stages, they are apparently so intermixed; as no doubt there will be inflamation and effusion going on at the same time; and the will consequently have symptoms indicative of each of these causes; according as the one has subsided, or the other advanced: so that there are two stages, going on at the same time. If I may be allowed the expression.

Diagnosis. The diagnosis in this disease is sometimes difficult; as most all the trouble from the bowels, and teeth, bear a close resemblance to the forming Stage of Hydrocephalus; and, as these are frequently the exciting causes, or complications of this disease, the attention of the Physician ought always be directed to the head, when they ~~they~~ are unusually severe; he will be soon able to discriminate however, for a free alvine discharge, or incision of the gums, will remove the doubt.

as to the nature of the trouble

There is a disease liable to to be mistaken for this, which depends on totally opposite condition of the system; with symptoms somewhat similar; the head heavy; the breathing and respiration irregular; the pupils dilated; so far, this resembles Hydrocephalus. The skin will be cool; the face pale; the pulse weak, and the system in general debilitated. So that after all, a judicious Physician would not be likely to mistake one for the other.

There is another affection which is liable to be confounded with Hydrocephalus. That is, intermittent or Worm fever of children. In Hydrocephalus the head is hot, in Worm fever the abdomen is hottest; while the head is comparitively cool. In Hydrocephalus the eye is very sensible to light; in Worm fever the patient never complains of light; nor is there paralysis as, in Hydrocephalus. The very nice distinctions however, are not of much moment; whenever there are symptoms which would lead us to suspect cerebral disturbance, it is our duty to act on the safe side, for on the

early recognition and treatment, depends the probability of success.

The Prognosis in this disease is always doubtful, when it occurs in a scrofulous child; or when it creeps on insidiously. In the inflammatory form it is better, when it occurs in a robust child. The Prognosis is especially bad, when it is coexistent on another disease. The duration according to Dr. Watson is one to four; while Dr. Wood maintains, that in the tubercular form recovery is almost hopeless

Pathology. The most common lesion is effusion of serum into the lateral ventricles of the brain, and in the arachnoid cavity. The quantity varies from two to eight ounces; usually limpid; but sometimes turbid like whey. Softening of the central portion of the brain, is most usually found; the Corpus Callosum, Septum lucidum, Fornix, and the walls of the lateral ventricles, are soft and pulpy; And this by some is the essence of the disease, as effusion is sometimes absent. Tubercular granulations is often found on the surface of the brain and Pia Mater; pus has also been found on the surface of the brain.

Treatment. The treatment of course will depend on the severity of the symptoms; when the fever runs high in a robust ~~patient~~ patient the abstraction of blood will be necessary; but when the disease is slow, in a weak scrofulous child, depletion is doubtful. In such cases purgatives will be our chief reliance; and the mercurials will be the most efficient. When there is disordered bowels, a full dose of Calomel is particularly suitable, by correcting the bowels, and exercising its influence over inflamation, and by creating a serious discharge from the bowels, lessens the amount of fluids. Another indication for the exhibition of Calomel, is the irritable state of the stomach; as by its weight, it will be retained, when most every thing else, would be rejected; a full dose may be given every other day, untill inflamation has somewhat subsided. Cold to the head is a powerful means of controling inflamation of the brain, by lessening the action of the bloodvessels of the brain. It may (be) applied, by keeping wet cloths to the head, renewed as oftenas they get warm; or by letting water drop constantly on the head; Care however must be taken, as it might be carried to excess.

At the same time, Sinapisms, or the warm bath, should be applied to the feet. Anodynes sometimes will

be necessary to quiet the excessive irritation, but they must be used with caution; probably the best form is Dovers powder, as the ipecacuanha will obviate any effect the opium might have upon the brain.

The Iodide of Potassium of late years has almost superseded all other remedies in the treatment of this disease. It seems to act by increasing the general secretions, and particularly the urine. It has been given in doses from two to ten grains, every hour three hours. It has been recommended in all stages; but will be more likely to be of service in tubercular cases, or after inflamation has somewhat subsided; by bleeding, Calomel, &c. Other remedies, may be used, to meet indications, but these I have mentioned, are the most relied on

Croup

This disease [illegible] with attendant [illegible]
[illegible] [illegible]
[illegible] [illegible]
[illegible]

of weather & in winter more than in summer. It seldom occurs in the southern parts of Europe & of our country. Residence near the sea & the mouths of large rivers. All East winds & a dry [illegible] are mentioned among the predisposing [illegible]. The causes not only affect the frequency of its occurrence but determine to a great extent the nature of its lesions. In the rural districts it usually occurs [illegible] character with a greater abundance of membranous exudation than occurs in the asthenic cases among the poor of large towns & cities. In these cases [illegible] ulcerations appear about the [illegible] which are seldom met with in children placed in circumstances more favorable to health.

Croup may be either idiopathic or secondary & not apparently superfluous [illegible] of other diseases such as Bronchitis, Scarlatina, Measles, Small Pox, etc.

Anatomical Characters — The appearance of the mucous membrane varies with the intensity & duration of the disease. If severe & death takes place early the lining membrane of the larynx

& trachea is inflamed of a bright red colour. But in the last stages of the affection it not unfrequently presents its natural pale color. But the characteristic morbid appearance is the false membrane which lines the air passages. Its deposit in the larynx is generally subsequent to its effusion in the fauces & almost invariably precedes its formation in the trachea. Frequently it is found in the former when in the latter only pulmonary matter or viscid mucus is observed. In what is sometimes called Catarrhal Croup this effusion is less in quantity & mixed with a greater amount of glairy mucus. In the Spasmodic form, false membrane is seldom seen but merely viscid mucus covering patches of vascular redness especially in the larynx.

The false membrane of Idiopathic Croup is sometimes thin & delicate more frequently thick opaque, white or yellowish white & smooth on both surfaces. The Croup is associated with other diseases as Measles, Scarlatina, etc., the membrane is usually less firm, less adherent more yellowish & mixed with pus.

When first secreted the membranous Exudation is finely adherent to the free surface of the mucous membrane & if the case is not speedily fatal the vis medicatrix naturae at times partially & in some instances wholly detaches it by a purulent secretion. But its removal only reveals increased vascularity of the mucous tissue which however bears no proportion to the amount of false membrane present.

But these post mortem appearances do not disclose its Pathology unless it be considered an inflammation of the sub-mucous cellular tissue which is commonly infiltrated with serum in this disease —

Symptoms. Medical writers generally divide them into 3 stages. 1st those of the forming stage. 2d of the mature stage & 3d those of the collapsed or suffocative stage

1st In the first stage few if any symptoms are present to distinguish it from an ordinary catarrh. It is attended with a slight fever alternating with chills a short dry cough, deflection from the nares & great restlessness - The tongue is coated but moist There is a huskiness to the voice as if the throat needed clearing. The patient complains of

uneasiness & sometimes even of soreness of the throat & if the inflammation has extended into the [illegible] there will be sonorous [illegible] in [illegible] of the chest. [illegible] to Dr John [illegible] many cases which in their [illegible] most severe are not preceded by the catarrhal symptoms & are in the first stage characterized only by a [illegible] effort manifested in respiration. A storm onset is not necessarily nor even commonly the precursor of the severest form of the disease.

The duration of the precursory stage is very variable. Sometimes it lasts but a few hours and commonly it does not extend beyond 18 or at most 36 hours. The transition from the first to the second stage is not usually sudden & distinctly marked. [illegible]

2. The symptoms which characterize the second stage are. The peculiar ringing [illegible] & the prolonged inspiration attended with a stridulous hiking sound. It is said that this rough breathing may be heard through a stethoscope or the ear applied to the neck before it would be otherwise distinct.

After a few hours these symptoms are attended by an increase of fever - difficulty in the respiration & great heat of skin. The pulse becomes hard & frequent, face flushed, eyes suffused & injected, & the head thrown back. At this stage the trachea & larynx are often swollen & tender to the touch. These symptoms which more frequently come on at night subside in the morning, but the rapid pulse, [illegible] breathing & hoarseness continue. The intermission usually lasts until evening - when the symptoms recur with greater severity than ever - the cough becomes more convulsive & endangers the life of the patient from suffocation. The difficulty of respiration is great. The [illegible] of coughing becomes more frequent. The chest heaves with the inspiratory effort. The hands are clenched & frequently carried [illegible] larynx as if to point out the seat of the obstruction. In many cases very little air enters the chest as is shown by the concave state of the intercostal spaces. At each inspiration, all these symptoms become more & more aggravated & sometimes end in the expectoration of sheds of opaque albuminous matter, streaked with blood

or in some cases with the expectoration of a false membrane [illegible] in pieces. The progress of the disease may now [illegible] attended with [illegible] of the voice [illegible] respiration.

The voice soon becomes broken to hispering & suppressed partly from the pain that it [illegible] the cough. It is during this stage that the false [illegible] is [illegible] but [illegible] is not indicated by any [illegible] yet it [illegible] the air passages [illegible] & the voice. M. Trousseau states that when the cough having been clear and ringing becomes less frequent & at length almost [illegible] may be certain that exudation has taken place.

The last stage is [illegible] failure of all the vital power & by the absence of any remission. The pulse becomes [illegible] & intermittent. The respiration is more [illegible]. Cough suppressed. The lips lived the veins of the neck distended the skin covered with a cold clammy perspiration the head thrown back to increase the capacity,

of the trachea to its extremity. The eyes are sunken & dull with [illegible] [illegible] [illegible]

twelve hours. The asthenic form attacks feeble cachectic subjects especially those whose constitutions have been broken down by previous disease. The form is of a low type & the progress of the symptoms [illegible] [illegible] form of the disease the severe the stage of [illegible] supervenes early. It is this form which occasionally comes on in connection with Scarlatina & Cynanche Tonsillaris. The Albuminous exudation frequently extends into the throat & fauces & is then [illegible] with the Syphilis of Bretonneau. Catarrhal Croup so called usually exhibits at first the symptoms of Common Catarrh. The voice after a few days is hoarse — Cough becomes severe & Croupy & there is tightness oppression & some approach to the Croupy sound of inspiration. But the difficulty of breathing is not so great & there is no indication of that mechanical obstruction to the current of air which exists at the rima glottidis in the other form of the disease. This form not infrequently complicates [illegible] adding to its symptoms the studulous inspiration & ringing cough indicative of constriction of the larynx & trachea.

the uncomplicated cases of the form yield gradually, the Croupy symptoms subsiding in a few days leaving only the Catarrhal [illegible]. Of Spasmodic Croup? little need be said. It is distinguished by the sudden [illegible] by a loud ringing shrill inspiration somewhat resembling the whooping inspiration of Pertussis but louder & more sonorous. Expiration is performed with comparatively [illegible] the paroxysms though sudden & severe are followed by more complete remissions than in the purely inflammatory form. Children of a susceptible nervous system & disposed to nervous diseases are very liable to it. There is doubtless in all cases of Croup a combination of inflammation & nervous symptoms but in this form the latter preponderate. Cases are mentioned which are occasioned by nervous irritations such as teething, indigestible substances taken into the stomach, worms etc. These are unconnected with inflammation & constitute the true Spasmodic Croup of the books.

Prognosis. Formerly when this disease was less understood than now the mortality amounted to nearly four fifths of all attacked. But according to the

statements of M. Dubble it is now reduced [illegible] one half. In the well developed cases the probabilities [illegible] decidedly against recovery but if attacked early with appropriate remedies the disease will frequently yield & even in the advanced stage if it be a [illegible] case with [illegible] inflammation moderate fever & no complication the child may recover. But if the disease is violent & rapid in its course attended with violent cough great difficulty of breathing & high fever & especially if complicated with pulmonary affection little benefit can be expected from treatment. Although standing the improving nature of such cases they do sometimes recover even when all hopes of life seem to be extinguished.

Treatment. The indications of treatment are to diminish the inflammation & fibrile action & to prevent the formation of the false membrane in the air passages or 2d when already formed to procure their removal 3d to subdue spasmodic symptoms as soon as they arise & 4th to support the powers of the system

1. To fulfill the first indication an emetic of Ipecacuanha & tartarized antimony [illegible]

mild or the inflammatory action not severe, otherwise
tartarized antimony is preferable in small repeated
doses to keep up the nausea after an emetic action has
been produced. At the same time a warm bath or the
inhalation of steam prove beneficial. The topical
application of a solution of the [illegible]
mucous membranes of the fauces & [illegible]
so as to produce simply a protective [illegible]
effect is now considered by many very high
authorities to be one of the best [illegible] remedies
which we possess [illegible] inflammatory [illegible] of
the [illegible]. By means of this treatment the disease
may be cut short in the precursory stage, but
in many cases it [illegible] mitigated and [illegible] a
few hours returns with increased violence
attended with high fever, full hard pulse & all
the other symptoms of [illegible] inflammatory action.
In such cases Dr Cheyne recommends general bleeding
~~generally~~ soon after the exhibition of an emetic [illegible]
this their depressing effects are maintained at a
small loss of blood. This may be preceded or
followed by a warm bath. Others say general

bleeding) is seldom necessary, resulting local by means of leeches or cups to the shoulders or over the sternum.

It is difficult to ~~[illegible]~~ reconcile the adverse opinions of authors with reference to bleeding in this or any disease without taking into consideration the character of the disease, the constitution of those attacked & the circumstances by which they are surrounded.

In the sthenic form of Croup occurring in [illegible] in rural districts general [illegible] might be [illegible] but the asthenic form which generally attacks weak cachectic subjects [illegible] of large towns & cities even local bleeding would be decidedly injurious. A patient should not be bled because he has Croup but in this as in every other disease if the symptoms indicate depletion it should be performed. If the disease is fully developed & the dyspnoea permanent blood letting is not advisable. It is only in the earlier period of this stage that any considerable benefit can be derived from it. Exudation has already taken place & remedies should now be directed to fulfill the second & third indications. The antimonials should be continued & the use of mercury commenced

Dr Cheyne recommends the use Tartarized Antimony as the chief remedy & says that he has found no other worthy of confidence. Dr Rush & after Prof. Hamilton of Edinburgh & others depended [illegible] large doses of calomel repeated once in two hours until dark green evacuations were produced. Prof. Hamilton attributes to it not only a purgative & [illegible] but a specific operation. [illegible] places most confidence [illegible] & [illegible] used conjointly & [illegible] full doses of calomel repeated two or three times a day. If it irritates the bowels Opium or Dover powder may be given in connection. After the [illegible] have been subdued. Counter irritation by means of fomentations or rubefacients to the throat will sometimes relieve the paroxysms of dyspnoea & under the respiration more easy. To fulfill the second indication those emetics which have an expectorant property & are least depressing as Squills, the wine of Ipecacuanha. [illegible] If the child is sinking into the stage of collapse the main reliance is upon stimulants Carbonate of ammonia - wine whey

& animal broths may be employed the remedies being graduated according to the debility of the patient.

This is the stage at which an artificial opening is commonly made into the larynx or trachea. We would not say that the operation is delayed until the patient is the stage of collapse but being considered the last resort it is rarely or never had recourse to until the system is so completely prostrated that it offers no chances of success. While if performed at an earlier period it would at least give the patient a greater chance for life & not interfere materially with the employment of other remedies —

Scarlatina

Scarlatina designates a contagious febrile disease, the distinguishing features of which are a scarlet efflorescence of the skin and mucous membrane of the mouth and pharynx, appearing on the second day, and ending in desquamation about the fifth or sixth day.

The origin of this disease is involved in great obscurity. It was evidently unknown to the ancients. Hippocrates, in his writings made no allusions to the disease, neither did the early Greek & Roman writers. Notwithstanding the opinion of some modern authors of the French school, that it was described about the middle of the seventeenth century it is generally admitted that Prosper Martianus an Italian physician, who gave a description of the disease as it appeared in Rome about the middle of the seventeenth century, if not the first is among the earliest writers on Scarlatina. It was described by Sydenham, and afterwards by Morton

as it appeared in London in the year 1689, and comparing the discription of the disease as given by these two writers, would leade one to believe, that they had observed different epidemics; the one discribed by Sydenham, being a mild disease, compared with that of which Morton gave an account

Scarlet fever has long been confounded with measels, and even when distinctly discribed, appears, from the names employed to have been considered merely as a variety of that disease.

Three varieties of Scarlet fever are discribed by most of our authors at the present day viz.- Scarlatina Simplex - S. Anginosa, and S. Maligna, and the symptoms of the different varieties are pointed out so distinctly that the student might be led to suppose them equally distinct in nature. The disease is essentially the same in all its varieties, and produced by the same cause, I shall speak first of the general symptoms, then will

discribe the symptoms as they present them-
-selves in the three different varieties

Symptoms, Course &c. There may be or not, the usual preliminaries, of langour, weariness, rigors, & pain in the back and loins. The tongue is furred, skin is hot & dry, pulse frequent, there is anorexia, thirst & great muscular prostration, The patient has head-ache more or less, or the nervous system is affected otherwise, as restlessness, mooid vigilence, coma, convulsions; the fever in this disease assumes every variety of grade, from the mildest form scarcely amounting to disease, to the highest point of violence and danger. If the mouth and fauces, are examined along with the fever, they will present, infla-
-mmation, and not unfrequently are swolen. This same colour is diffused throughout the interior of the mouth, and the tongue which before was coated with a thick yellowish fur, exhibets projecting red papillae, the tip and edges of the tongue are red

The rash generally appears on the second day of the fever, earlier, later, and sometimes if you can depend upon the patients word, exactly at the commencement of the second day. It generally commences on the head, face, and sometimes on the breast, thence gradually diffuses itself over the whole body, in about 24 hours. Sometimes it shows itself only in small portions of the body, but much more frequently it covers the whole body. The redness on the head and neck is diffused very equably, but in the joints is of great intensity. The colour of scarlet fever has been compared to a boiled lobster, it disappears on pressure, and whatever has a tendency to excitement deepens the flush.

The fever does not abate on the appearance of the rash, but continues throughout the disease with various degrees of violence. The skin is very hot and dry, and is not unfrequently at the temperature of 105° Fahrenheit. The pulse still continues in frequency, often as high as 120 to 130. in a minute, it has even been known to be

higher than this. In the morning and fore part of the day, the fever is slight, but has exacerbations in the evening, and accompanied with delirium, great restlessness and comatose symptoms. Constipation is a general attendant in this disease, although in the latter stages, diarrhoea sometimes occurs.

The throat is affected more or less, in nearly all cases, it is swollen, within and without, thereby rendering deglutition difficult.

The disease attains its height about the fifth or sixth day, and if the case is a favorable one, the bad symptoms gradually subside, the rash fades, the pulse becomes slower & fuller, the heat of the skin diminishes, the throat affection abates, the tongue if it has not done so before, now flings off its fur, and presents its natural colour.

Desquamation begins with the decline of the eruption. The cuticle comes off in small flakes, but often in large portions, and cases are on record, where it presented

the appearance of an entire glove. The period of desquamation is attended with much itching, irritation, and oftimes the skin is very sore

The patient from the beginning to the close of this disease is not free from danger. They may die in the first stage, from the overwhelming force of the shock upon the nervous system, the stomach and bowels may be so much affected as to produce death, also from debility arising from the occurrence of gangrene of the throat.

Having given the general symptoms, I will proceed to discribe separately the three varieties, and first Scarlatina Simplex.

This is distinguished by the absence of throat affection. After a period of from one to three days, the patient is seized with slight chills, alternating with transient flushes of heat. There is pain in the back and loins, nausea and vomiting, skin is hot and dry. The fever usually comes on in

the night, in the morning the pulse becomes quick, tongue presents a white furred appearance, The eruption in this disease comes on at the end of twenty four hours. The rash consists of innumerable red points, which running into each other give a diffused flush to the skin. The miliary glands and papillae of the skin are usually somewhat enlarged, and present a roughness to the touch, especially on the breast and extremities. The redness diminishes upon pressure, leaving a transient white spot. With the eruption there is great heat and itching. The digestive organs are affected, the fauces are sore. On the fourth day the fever and eruption, are at their complete stage of development, and on the fifth both usually decline, and continue to decline until they have gone off entirely, about the end of the seventh day. When the eruption is about disappearing, the tenderness of the fauces abates, the perspiration is free, the

urine deposits a copious reddish sediment and in some cases diarrhoea takes place. This disease in some cases is so slight as to scarcely attract attention, and it may begin and proceed day after day very mildly, and when we least expect it it will assume the most virulent aspect, so as to carry off the patient before the physician can be called

Scarlatina Anginose. In this variety the affection of the fauces is the most prominent. The eruption in this form is usually a day later, in making its appearance. The patient complains of soreness of the throat, stiffness of the jaws, a dull pain in the muscles of the neck, under the ears and angles of the jaw. There is head-ache, precordial oppression, nausea and sometimes vomiting, and general prostration. These local symptoms frequently precede the fever. Examining the fauces, tonsils, palate, and uvula, they present a

red and slightly tumid appearance, the voice becomes hoarse, deglutition is difficult, and in respiration the patient feels a sense of constriction in the throat. The patient is much troubled with a viscid mucous, secreted in the fauces, which he cannot swallow, and finds it difficult to discharge by the mouth. The lips present a cracked appearance, invested here and there with crust and cause much pain when parted.

The breath of the patient is very offensive, Pulse is very frequent & weak, much more so than in the simple variety, skin is intensly hot and dry.

The eruption does not make its appearance so early as in the simple form. It is sometimes perceptible on the second, but often not until the third day, and comes out, not equably diffused over the whole surface of the body, but in irregular patches in various parts of the body especially about the elbows and wrists.

It has been observed that when most severe the eruption, came out sooner, sometimes on the first and second day. It evinces also a great tendency to vanish, then reappear an indefinite number of times, without perceptible change in the symptoms, only the duration of the disease is protracted. About the fifth or sixth day of the disease the fever and inflammation of the throat begin to abate, at the same time the rash declines, becoming faint first on those parts where it first came out.

The disappearance of the eruption is followed by desquamation, this process is however uncertain. When the rash is slight, or recedes, soon after it comes out, desquamation does not take place. Though this the usual progress of S. Anginosa, the disease frequently assumes a still more severe character, all the above symptoms may be greatly aggravated, the internal organs are more or less affected, the symptoms assume a typhoid character. There may be coma

as the brain is prominently affected during the eruptive stage. Abdominal inflammations may likewise supervene. At first there is only a slight soreness in the abdomen, with a quickened pulse and hurried respiration, but the pain and soreness gradually increases and at length are attended with vomiting, eructations, fullness of the belly, and general restlessness. This variety of disease is much more apt to prove fatal than the simple, and when recovery does take place, it is more frequently after a long struggle in the resistance and repair of organic mischief, but still in by far the larger proportion of cases, the patient gets along well, and the disease passes off at the regular periods without any accident.

Scarlatina Maligna.

The term maligna is enough in itself to imply the nature and severity of the disease, were we not to enter into the minute discription of the symptoms.

This disease is often termed, Cyanche Malignan
Malignant sore throat. The form of this
disease is similar to the two preceeding
varieties, excepting it much more severe
and violent in its character. The Eruption fever comes
out at uncertain periods, from the second to the
fourth day, and is usually pale when it first
makes its appearance, acquiring a dark or livid
hue in the progress of the disease, It is also very
irregular in its duration, it often disappears,
soon after it has come out, and after two or three days
has elapsed reappear in some other part of the
body, there is great prostration and nervous depres-
-sion. The throat is much affected, and is of a
deep-red approaching to a mahogany colour;
there gangrenous eschars, and deep ulcerations
often form, with occasional destruction of the
soft parts. The odor of the breath is fetid. Sordes
accumulate on the teeth, tongue is dark brown,
blood in the severer cases oozes from the fissures of
the lips, hemorrhage may take place from any
of the mucous surfaces, and obstinate diarrhoea

set in, there will be sloughing of the sacrum and hips, and at length a collapse takes place with sunken features, cold calmmy surface and the patient dies, The brain is always affected in this disease, delirium occurs at an early period of the disease, and often continues with occasional intermissions and exacerbations, throughout the subsequent course of the disease.

Sequelae = Scarlatina like measels are followed very frequently by various trouble-some, and often dangerous disorders. Among the most common and troublesome sequelae are abcesses, which form in the immediate vicinity of the submaxillary and parotid glands. Dropsy is a common sequelae, so also deafness, and unless cured immediately after coming on proves difficult to cure.

Diarrhoea is another not unfrequent, ~~sympt-~~ ~~tom~~ consequence of scarlatina, which sometimes proves obstinate. Though generally submits to a mild and judicious treatment.

The joints are affected by pains similar in nature

to rheumatism, and cramp pains in the lower extremities, and stiff neck are other sequelae.
But perhaps the most serious of all these is dropsy. This attacks the patient during the period of desquamation, and for a considerable time afterwards, and the cause of it is premature exposure of the delicate skin to the cold.

Anatomical Character:

The eruption after death entirely disappears, and on dissection, sometimes we can find no morbid appearances, that could explain the cause of death, in such instances, it is more than probable, that the diseased condition of the blood and fluids, has had an important share in the fatal issue. Various internal organs, are congested, and when inflammation of any tissue has supervened, the effects are seen after death. When there have been violent delirium, and other symptoms of cerebral excitement, the arachnoid membrane is vascular, and even opaque, with a serous effusion, & sometimes a milky fluid underneath

The substance of the brain in such cases is usually vascular. The kidneys are often inflammed, or congested, the blood is in different states, in different cases, in some thick, in others watery; in some dark in others red.

Causes: Scarlatina arises from a contagious miasm or principle which like most other febrile contagions appears to be much under the influence of certain occult atmospheric temperature, as is manifest from its occasional epidemic prevalence, as well as from the various grades of virulence and diversity of character, which different epidemics have been known to assume.

Scarlet fever frequently occurs epidemically and there is this peculiarity in the epidemic, in that it is often confined to a single city, a part of a city, or to a small portion of country. The disease rarely attacks a person but once, still there are cases on record, where the patient has been attacked twice. There has been much controversy concerning this latter point. Withering & Willan assert that

they never witnessed a second attack of the disease, and they deny the possibility of this occurrence, Cases of second attack have nevertheless been adduced by authorities equally respectable.

Some persons are wholly unsusceptible to the operation of this contagion, and live to a good old age without becoming affected with it.

Scarlatina occurs at all seasons, but it has been observed that warm weather, and the air of low and marshy districts, have a tendency to promote the dissemination as well as the violence of the disease. No age is exempt from this disease, but children are much more liable to it than adults, and the susceptibility seems to diminish from puberty upwards.

Females are much more liable to it than males. The period of incubation is from two or three days to two or three weeks or more. It is probably about 5 days

Diagnosis: The only disease with scarlatina is liable to be confounded is measles & miliary fever, and in the simple & anginose

variety. the diagnosis is attended with no little difficulty. It may be distinguished from measles 1st by the period at which the eruption appears 2nd by the character of the eruption, and 4th by symptoms which are frequently observed after the disappearance of the rash.

In scarlatina the eruption usually makes its appearance within the first 48 hours, of the fever, while in measles it does not come on until the third and sometimes not until the fourth day. The colour of scarlet fever is more of a diffused flush, while measels is more in patches and rather brown. The most prominent diagnostic symptoms between these two affections, however are the catarrhal phenomena, which are almost always very conspicuous in measels, whilst in scarlatina they are altogether absent, or are extremely slight and partial.

Prognosis: There is no disease which in its first and middle stages are more difficult to prognosticate than scarlatina.

for as I have said before, the disease may be acting very kindly day after day, when suddenly new and violent symptoms, present themselves which carry the patient off in a few hours. We can only prognosticate them correctly, when we observe some of the prominent unfavorable signs such as the late appearance of the eruption, continued delirium & profound coma, a livid appearance of the fauces, with gangrenous sloughs or ulcers, extention of pseudo membranous exudation into the larynx; gangrene of the hips and sacrum where pressed upon, and great prostration as indicated by a feeble pulse and cool skin. The favorable signs are absence of the above, and gradual subsidence of the disease, but there cannot always be relied on for the disease is apt to change from good to bad.

Treatment: In the simplex little need be done. The patient should be placed in a cool apartment, where there is free circulation of fresh air. An emetic and

cathartic should be given at the outset to remove the offending matter in the stomach & intestines.

If the skin be very hot and dry, sponge the surface of the body with cool water, as it will relieve the patient of a morbid heat, and make him more comfortable. Bleeding is not recommended in the simple variety unless there is great plethora.

S. Anginosa: The treatment in this variety very much resembles the simple. Emetics of Ipecac and Chloride of Zinc should be given at the outset, as they produce a free discharge from the mucous membrane of the throat. Tart. Ant. should not be given, as there is a tendency of the symptoms to relapse into the typhoid state. Blisters & warm fomentations may be applied to the neck: also leeches if placed directly in front have a decided benefit. As the thirst of the patient is very great, ice may be given in small lumps. If the patient be a small child the ice may be rubbed within

a thin gruel. Diuretics and diaphoretics are to be administered as the sweet spirits of nitre. cooling saline drinks, and gargles are to be freely administered. The capsicum gargle is the most efficient. it is composed of capsicum. salt. vinegar & warm water. given in teaspoonfull doses. As there is great prostration of the muscular and nervous system. the strength of the patient must be kept up by wine and beef tea and other things of a strengthening nature.

S. Maligna: If the physician be called upon to treat this form of pestilence. at its very commencement; and before it is fully formed, an antimonial emetic is very beneficial. The capsicum gargle is used, also the Chlorate of Potassa injected into the nose. and against the palate. Quinine is to be given. There is great tendency to dropsy.

The turpentines are used to relieve this disease. If there is great tendency to Inflammation the more active antiphlogistics

are to be employed. The period of convalescence is of importance both to the physician and patient. He must be carefully watched, must not be allowed to go out in the open air during the period of desquamation, and it were better if he remained within doors for some days afterwards.

A few words as to the preventive treatment. Children should be separated as far as possible from every source of infection as they are less liable to take this disease the older they grow. The sick room should be well ventilated, so as to dilute and dissipate the poison.

Different prophylactic medicines have been recommended, among which belladonna enjoys the confidence of the of the greatest number of physicians.

Hahnemann, the author of the Homeopathic hypothesis, was the first to assert this

It is said that belladonna used in gr iii to the ℥i. of distilled water and given in doses

of gtt iii twice a day to a child under one year and gtt i more to be added for every succeeding year will render the disease much more mild if it do not prevent it altogether, and if it be taken four or five days before the exposure to the contagion, the resulting scarlatina never proves fatal.

Elizabeth Gregory

Danbury November 30th 1833

Concussion & Compression

In scanning so vast a field of knowledge as that which constitutes the science of medicine we find much to awaken a lively interest, much to excite a desire for continued investigation. Though not unattended with some degree of obscurity the light that Anatomy and Physiology sheds at the present day under researches into the Pathology of diseases, both easy and fruitful having for their important and practical end the treatment and removal of disease the invigoration and improvement of the bodily powers.

The obscurity which presents itself in treating diseases seated in the nervous system must arise from the imperfect knowledge of its functions.

also of the particular changes in conditions of the nervous tissue and the results which constitutes the disease. "Morbid changes which may take place in the brain will in one instance produce symptoms quite unlike the symptoms which will appear in another case from apparently the same alteration of its texture."

Also different states of the centrum may give rise to quite the same symptoms, as for example exhausting or fatal hemorrhage and the clonic spasms of Epilepsy, whether from the deposit of tubercles in the brain or from nervous irritation seated remote from it."

The arrangement of the functions of the centrum and its corresponding centres of nervous power may arise from idiopathic or symptomatic disease or from external violence manifesting itself in symptoms which point to the locality and extent

with a variable degree of certainty."

Concussion is a derangement of the Brain resulting from some external force as blows or falls upon the head, which may or may not be complicated with wounds of the integument and fracture of the bone." It may be produced to a certain extent from violence sustained by other parts of the body, in which case the whole frame suffering from the concussion. The extent of the concussion being in proportion to the direction and amount of the jar."

When the force is thus received there is most commonly only a partial suspension of sensibility and motion followed it may be with nausea or vomiting, [illegible] of the [illegible] confusion of ideas." A more general and extensive injury of the encephalon is marked with symptoms of a more [illegible]

-ing nature." The most prominent symptoms are contracted pupil or it may be natural, cold extremities, pale, [illegible] features, quiet respiration, [illegible] irregular and often hurried pulse, and all the [illegible] of [illegible] [illegible] a period are abolished, upon the return of consciousness, the [illegible] [illegible] sympathise with the local injury."

There is frequently a very close resemblance between the symptoms of compression and concussion but the symptoms of the latter are much more transient while those of compression remain until the cause is removed."

The state of the pulse, respiration and the pupil if closely observed may aid in the diagnosis. "In compression, pulse is often irregular, slow or oppressed and the respiration difficult and stertorous."

"This occasional mingling of symptoms may render an exact diagnosis impossible."

untill a gradual return of consciousness, superiuns followed by [illegible] action and increased central circulation and inflamation by rapid effusion from injured vessels."

The symptoms of compression from extravasation may appear at the outset and continue and the short interval between the going off of the one and the accession of the other makes it a nice point to decide which of the two is present."

Concussion may be complicated with wounds of the scalp, or fracture of the bone or bits with depression."

Concussion may terminate in perfect recovery or in too great reaction and inflamation." In slight injuries of this nature, all the morbid appearances soon vanish and the patient becomes completely free from every unpleasant effect."

But where extensive injuries have been received, inflamation of the Brain or its membranes may soon appear."

Treatment of Concussion. Stimulants during the 1st stage or comatose state are are plainly indicated, gentle but efficient means should be employed." Phlebotomy is evidently not indicated in that form of concussion not complicated with lesions within the Brain and effusion. Neither when there is no fullness, nor turgescence of the face or of the vessels of the scalp and neck. In this state, friction and warmth applied to the body, sinapisms to the feet, internally some of the diffusible stimulants, but the Brain may be so deranged in its functions as to be completely insensible to [illegible] in which case they will not unlikely do harm by increasing the excitement which follows." And the most proper to

be employed are those the most prompt in their
operation and transient, as the Carb. ammonia.
Sulph Ether &c. Also keeping the body warm
yet avoiding every thing which may [illegible]
the inflammation which too frequently succeeds.
To avoid this second stage of inflammation
strong light should be excluded and
sounds with the view to arouse him.
If recovery does not follow the subsidence of
the shock and there remains a state of [illegible]
[illegible] the [illegible] of the
circulation, [illegible] administration
arterial stimulants may be beneficial notwith-
standing the propensity to relapse if such means
are not employed with care.
Should inflammation succeed change of treat-
ment must be made free depletion and active
cathartics will be indicated along with [illegible]
cupers blisters to the head [illegible] dark room
with the [illegible] [illegible] [illegible] [illegible]
be enforced — very low diet

Compression may now appear from [illegible] of lymph or serum or [illegible] of the inflamatory action.

Compression more frequently arises from [illegible] applied to the head causing a [illegible] or less depression of the bone along with which there may be rupture of some of the vessels within the cranium, the symptoms appearing sooner or later according to the immediate cause; if from [illegible] the size of vessels [illegible], if small the state of coma may not come on perhaps for hours, if large as the middle meningeal [illegible] may commence from the moment of the blow and continue till relieved by the [illegible].

The principal symptoms, by which this state may be recognized are, insensibility to all impressions, slow, full pulse, respiration slow and stertorous, or apoplectic nausea and vomiting, paralysis of all the voluntary muscles upon the side opposite the injury.

dilated pupil, purple color and turgescence of head and neck, insensibility is more complete than in Concussion, involuntary evacuations of the urine and feces, flow of blood from the ears. These symptoms may appear from other causes than violence as from idiopathic inflamation of the Brain or its membranes, arising spontaneously, and terminating in what is termed the period of Collapse or of effusion whether arising in the Child Constituting Hydrocephalus or Phrenitis of the Adult, or Chronic Hydrocephalus is often attended with the symptoms of Compression. Tumors, growing from the bone upon the inner surface of the Calvarium or situated among the membranes. Abscesses also, and Hypertrophy may give rise to Paralyses & Comatose symptoms. Symptoms of Compression may also supervene upon injuries, when some foreign body is obtruded into the Cerebral substance piercing the membranes or perhaps more frequently, only depressing them.

A diminution of the usual quantity of Blood sent to the Brain, in which case the sensibility is slowly extinguished with slow and irregular action of the heart, may give rise to convulsions and Coma and other symptoms resembling those resulting from an opposite condition of the Brain as regards the quantity of circulating fluid.

The presence of poisonous matter in the circulating fluids may so affect or change its natural or healthy character as to establish symptoms so nearly allied to those of compression that the one may be mistaken for the other.

When it arises from depressed bone, symptoms appear at once but not at all equal to the degree of depression. if there is complete loss of consciousness with little depression and the force received upon the side of the head the symptoms probally arise from rupture of the meningeal artery or one of its branches. if the symptoms come on gradually then

some of the smaller anastomosing branches it may be of the Dura Mater or Pia Mater have suffered lesion. Blows upon the top of the head are more apt to rupture the vessels at the base of the Brain and is apt to be followed by a discharge of serum from the Ear some hours after. If this be the situation of the injury, Surgery can scarcely afford relief. Incision, warmth, irritating applications must hasten the flow from ruptured vessels. For example the patient is chilled with Cold at the time of the injury, the blood will circulate in the larger vessels, and serum from the smaller ruptured arteries (if small) will go on slowly or perhaps cease until the heats reaction is announced perhaps by the head of the room or by the use of stimulants to the surface or frictions, when the Blood fills the superficial Branches more completly and then follows the escape of blood between the Dura Mater & Skull or into some of the Cavities of the Brain. Coma now supervenes & the Compression is complete

The appearances now will be increasing insensibility, slow laborious respiration, relaxation of the muscles, slow and perhaps irregular pulse. the eye insensible to light the ear to sounds, and the patient seems to have lapsed into a undisturbed and tranquil sleep.

Blood may be effused between the Dura Mater and bone or between it and the Arachnoid or into the ventricles or substance of the Brain. When between Dura Mater and bone tumor is circumscribed which probably is formed by hemorrhage from its small vessels and defined tumor from the close attachment of the membrane to the bone. When between Dura Mater and the Arachnoid the blood is widely diffused no circumscribed tumor is formed. in this form there is a discoloration of the membrane and protrudes through the opening when the skull is opened.

When diffused so widely the symptoms are not generally so strongly marked. And when the injury to the head is very severe the effusion will be likely to occupy more than one or even all these situations.

When compression arises from some of the products of inflamation, the period of accession will vary from three to five days from the time of the injury. When the inflamation is not of a high grade the Arachnoid will pour out Serum. The patient may be in a very comfortable State up to this time so far as regards alarming symptoms, but now as effusion goes on the patient gradually becomes Comatose. Inability to any exertion. Loss of all voluntary motion and entire insensibility. If the inflamation has been of a violent character pus will be formed besides coagulable lymph and serous effusions. perhaps there are no symptoms which

by which we can judge of the location of these products, to a certainty which is an important point when we come to the last resourse of art namely the Trephine. Still the seat of the pain during the inflamation which may correspond to the part upon which the blow or injury was received, if so "that portion of the head which received the injury will be tender to the touch and the scalp will have a loggy feeling and if an incision is made down to the bone at this point the Pericranium will be found detached from the bone and the latter dead through its whole thickness"

The Treatment of Compression.

When it arises from depressed bone the most important indication is to relieve the Brain of its Pressure by the Elevator and Trephine or by the Elevator alone if there is sufficient space between the fragments for its Point if not and the fracture a simple one a simple incision down to the place of depression

and the Trephine applied to the sound portion using care while cutting through the inner table so that the dura mater may not be torn with its teeth, when the fluids are removed from the surface, the edges of the incision should be brought back in apposition and retained. When the Brain is relieved in this opperation no active preventative treatment should be employed after more than rest to the body, keeping the bowels open, and avoiding every thing which will excite the circulation.

It is often a difficult matter to decide at what part the blood is extravasated when the compression arises from this cause alone if there is fracture along with effusion and there is depression of bone it is probably at this point, here also will the patient appear to be sensible when pressure is made with the fingers having ascertained as near as can be the situation of the lesion & effusion the opperation of Trephining should at once be performed.

If active inflammation should appear after concussion, papes off then the Antiphlogistic treatment must be strictly followed, as full depletion and active cathartics. Antimonials the lowest diet, blisters to the head the topical application of ice water to the shaved head rest, and a quiet and a darkened room. Should serum or coagulable lymph be poured out, this active treatment must give place to the Trephina as the dernier resort."

It will not be supposed that I should introduce from my own experience anything [illegible] either in the pathology or treatment of this dangerous disease but only to arrange and compile its causes, effects, and treatment in my own style as I have seen it in the books and learned it from the lectures of Surgery without laying particular claims to originality.

C. B. Kirton

Cynanche Trachealis.

In writing a thesis on any medical subject, it cannot be expected of the Student who attempts the arduous task, to speak from experiance, or to advance any new ideas, originating with, & brought to maturity by him, during the short space of time allotted, ere he is introduced to the Faculty under similar circumstances to those which I now appear before you, For it seems to me to be next to an impossibility for any one with but three years training, attending during the time, two courses of Lectures which are of necessity of a somewhat flying nature, to write a paper, on any disease, trusting entirely to his own experience, & observation, acquired during that time, & have it properly digested, & so arranged, as to be fit to present to any body of scientific men, In consideration of which, should I, in my present attempt, prove somewhat of a compiler, I trust to the generosity, & liberality of this honorable board, that it may meet with their entire sanction.

This formidable disease, which excites in the minds of the parents so much alarm, for the safety of their child, & puts the little sufferer in such extreme distress, consists, for the most part, in inflammation of a highly acute nature, of the Larynx, or Trachea, or of both, which in the majority of cases terminates in the exudation of false membrane, of a greater or less extent upon the diseased surface. There is another affection that assimilates this disease in many respects, & is often confounded with it termed Spasmodic Laryngitis, or False Croup, it differs from it, however in the absence of the exudation of false membrane, in the Larynx, or Trachea, & in being a much more manageable disease, & less fatal in its termination. Genuine, or Idiopathic Croup, to which I shall confine myself principally, like various other morbid affections, which depend in a great degree on atmospheric, & telluric causes, is modified in many of its symptoms, by peculiarities of location, climate, & water, for the malady assumes one form among the poor of the City, & another when exhibiting itself in the Country, afflicting the children of the laborer. Croup in this country is essentially a disease of childhood.

& it appears from the Fifth Report of the Register General, that such is the case in the Old Country, for out of 1022 deaths which took place from Croup, 1013 occurred before the age of 15. & 879. before the age of 5. years" The exact cause of this great frequency of Croup in early life, I believe has never yet been satisfactorily explained, if so I am unacquainted with the reasons. The bills of mortality also show, that of those who are attacked by this malady, the greater proportion are male children, which likewise, although confirmed beyond a doubt, has as yet never received any adequate explanation. Croup appears, much more than most diseases, even of the respiratory organs, to be influenced by peculiarities of climate, & locality & like other maladies, which appears to be much under the influences of local, & atmospheric causes. it has its periods of epidemic prevalence. the most remarkable of which we have any record, is that which happened in the years 1805-6, & 7. when it extended over the greater part of Central Europe, at which time the death of Napoleons nephew, the Crown Prince of Holland, induced the Emperor to offer a prize for the best essay on this disease, & to

that circumstance we are undoubtedly indebted for much valuable matter on the subject. From that time to the present, there has been noticed from time to time a sudden increase in its spread, enough to prove that the disease depended principally on variations of atmosphere, but never I believe has it been so widely spread, as at that time. Be the circumstances under which Croup makes its appearance, what they may the symptoms arising from disease obstructing the channel by the Larynx & Trachea by false membrane, or producing spasmodic closure of their aperture, must be in a great degree the same. The manor in which the disease comes on, is however quite changeable. Occasionally it is announced by few if any premonitory symptoms, but the affection of the Larynx is perceptable from the commencement, & reaches in a very short time to an alarming state of severity. Some two years ago, I [illegible] a boy about three years of age residing in Coventry. He appeared in perfect health at night, & went to bed as usual, soon however his breathing became difficult & by midnight presented all the symptoms of Croup. Another case is recorded by

Professor Salis of Vienna, of a boy four years old, previously in perfect health, who having gone out of an over-heated room into the open air, during an extremely cold winters day, was seized while walking with all the symptoms of most virulent Croup, which proved fatal in 14 hours." It is not often however that the disease comes on so sudden, & makes such rapid progress, but generally its attack is more gradual, exhibiting in the first stage but few symptoms that would characterize it from a common cold. The patient is a little feverish, attended with more or less drowsiness. The eyes are slightly suffused, & some dejection from the tears accompanys it. The respiration is scarcely altered, & although there is some cough yet it presents no very marked characteristic. There is some complaint of sore throat, or an uneasy sensation about the Larynx, although it is little as hardly to attract notice, not enough to cause alarm. The duration of this stage is very variable, & the manner of its transition into the second stage does not follow any declinate rule, but in most cases it takes place gradually, although 36 hours hardly ever pass without the exhibition of some symptoms which

would be to the very practitioner suggest it to be tray the approaching danger. Many of the symptoms may continue unaltered, perhaps scarcely augmented, but a change is perceptible in the nature of the cough, which now assumes a peculiar ringing clanging sound very hard to describe, but when once heard will not be easily forgotten. This characteristic sound or cough often preceeds any alteration in the respiration, & may at times be so slight as scarcely to be perceived by the parents at the time, but when the disease becomes more fully developed, inquiries are made as to how the attack commenced, then this peculiar kind cough will be remembered. In a very short time after this change in the cough has become noticeable, or perhaps in conjunction with it, the respiration becomes altered in a manner no less remarkable. There is a prolonging of the inspiration accompanied by a stridor equally hard to describe, but marking the nature of the disease, with as much certainty as the tone of the cough. It is frequently the case that these two pathognomonic symptoms first make their appearance or at least attract notice during the night, for this

disease most frequently, commences in the night, & generally after the child has been more than usually active the day previous, & that a child who on going to bed, was to all appearances well, suddenly arouses from his slumbers, with ringing cough, & stridulous breathing & often very much frightened. From the commencement to the termination of the disease, there is indeed a strong tendency to nocturnal exacerbations, & remissions at the approach of day. In whatever form these symptoms may have come on, they will not continue long before there will be an increased fever, & difficulty in respiration. There will be a hot, & dry state of the skin, flushed face, The breathing becomes hurried & the cough more frequent, with a full & quick pulse The child appears dull, fretful, & even passionate. After a short time indeed it may seem quite cheerful, take notice of objects around him, or be diverted by its playthings, breathing the while more naturally, notwithstanding the peculiar respiratory sound, never altogether ceases. This state of things lasts but a short time, when the croupy symptoms come on again more aggrivated than before

during which the perspiration breaks out in profusion, & the veins of the neck & face become greatly distended. This is followed by short & forcible expiration. & after this state of dyspnoea has lasted for some time, the child relapses into a state of comparative ease, & it is often the case that he now falls asleep greatly exhausted, but although drowsiness is great, his sleep is of an uneasy nature, & often broken in upon by violent startings in spite of which the child sleeps on, but this is of short duration, for the little patient soon awakes, with a countenance expressive of terror, to pass through another paroxysm much like the preceeding though usually somewhat augmented. The cough however does not seem to increase in proportion as the disease advances, & there is no expectoration, or at least but little mucous is spit up, & that without giving any relief to the distress. The paroxysms of dyspnoea, notwithstanding they sometimes supervene immediately after a fit of coughing, & in fact are no doubt many times provoked by it, yet they are not dependent on the cough, & a few inspirations

ner following a violent effort of coughing are frequently accompanied by increased stretor. The voice from the first appearance of the well defined symptoms, is hoarse, cracked, & whispering, & there is much disinclination to speak, so much so that they will often answer questions only by signs. Much eagerness is usually manifested for drink, & there is no difficulty in deglutition. The tongue presents a red appearance at the tip & edges, while through the center, & at the back part, it is coated with a thick white fur. There is an entire disinclination for food, & the bowels are considerably constipated. In the more advanced stage of the disease, the paroxysms become less marked, or rather the intermissions become less distinct, & the child exerts itself almost continuously to respire. There is frequently an absence of the cough at this stage, & the breathing which before was stridulous now assumes rather a sibilant character. The child throws back its head as far as possible so as to increase the capacity of the Trachea. There is a violent heaving of the chest, at each attempt at inspiration, & a forcible depression of

the Larynx in direction of the Sternum, together with an energetic cooperation of the abdominal muscles during expiration. The appearance of the face is heavy, anxious with dull eyes, & lips of a livid hue; There is coldness of the extremities, & a dry skin, or the surface of the body is covered with a cold, clammy sweat. Though there is an absence of remissions, at this stage, yet there are frequent exacerbations, during which the patient is very uneasy, & almost constantly grasping at its throat, as if to remove some obstacle to the admission of air into the trachea, while its countenance is expressive of the most hopeless agony. In the midst of these sufferings the patient expires or Coma, or Convulsions coming on closes the scene. Such is the history of Croup as it has fell under my own observation, although as I remarked in the commencement, it has of necessity been somewhat limited, & could not be trusted to entirely in framing this paper. I see by consulting, Watson Dunglison, & various other authors of high standing, who have published treaties on this subject, & by comparing the symptoms, laid down by them, that

there appears a seeming discrepancy in the manner in which this disease is ushered in, although from the various forms in which the disease onset makes its appearance, in different subjects, I am inclined to view it as no discrepancy, whatever. I well recollect the case of a little girl about two years of age, residing in the same house with myself, & whose sleeping apartment was in the adjoining room to mine, She went to bed as usual & at midnight awoke me out of a sound slumber, & incited me to immediate action, so loud & peculiar was her cough, presenting the characteristic, brassy hoop of Croup, & that was the first symptom that showed itself, there being almost an entire absence of fever, & heat on the skin at the time. Neither is the fatal termination always bought about by the same symptoms as already described, but owing to proper treatment, is often very much mitigated. The restlessness may give place to ease, Skin become moist, Respiration more tranquil, & Expectoration easy. This apparent amendment, after a short time may be succeeded, without any apparent

cause by return of the more violent symptoms, & soon be followed by death. The exact duration of this disease is very difficult to ascertain, since its premonitory symptoms very greatly. I have never had an opportunity to witness but one fatal case & that was of a chronic nature, & took place at the end of the 14th day, much more commonly however it terminates in from three to five days. The prognosis of Croup should be very much guarded, for at best it can be but doubtful as it is unquestionably on of the most dangerous diseases to which childhood is subject. It is very necessary that the patient attacked by this malady should be seen as early as possible, for the first stage of the disease is by far the most susceptible of treatment, in fact very little hope of recovery can be entertained, unless the patient is seen before the disease becomes fully developed. There is no disease in which the most prompt, energetic & appropriate treatment is more demanded than in Croup, for I believe there is scarcely any disease that so soon gets beyond the reach of remedies, even in those cases where nothing

more than an attack is apprehended, the symptoms present are simply those of a common cold accompanied by a slight ringing cough, such as often marks the commencement of Croup. The patient should be closely watched, & seen not only in the day time, but late at night, so that we may not be taken by surprise, & called to our patient, many times perhaps when to late.

Treatment.

We should make use of these remedies in the treatment of Croup that will have a tendency to subdue inflammation, & relieve spasm. We must regard the amount of fever, if much, Tart. Antimony must be used, Frequently an emetic is all that will be required. If we have fever, & inflammation considerable, & spasm rather in the back ground, I should follow up my emetic with calomel to change all secretions. In very obstinate cases where all other remedies have failed to produce their desired effect, calomel has been given, by some eminent members of the profession, in enormous doses (viz. gr. 40) & continued for a length of time, with entire

success. Cloaths [illegible] out of hot water, & put on the neck, may afford much relief, & at the same time the room should be kept moist with steam. Sometimes perfect relaxation may be effected by Tart Antimony, or if it be not so severe a case Ipecac may be all that will be required. Tobacco Tea has been used in the place of Antimony with great benefit as a relaxing agent. The next day some expectorant should be given to ward off a second attack. In the membranous kind where the inflammation is not great, besides the remedies mentioned, the Nit. of Silver solution may be added, but in more violent cases, & where we are quite certain that the sufferings of the patient are so great that he cannot live long at that rate, the air should be admitted through an opening made in the Trachea, Opiates are to be used, after inflammation has been subdued, in the common form, but in the membranous form, they may be used from the outset. Blood Root is a remedy possessing great power over this dangerous complaint Dr Smith, the late Prof in this Institution

ranked it as one of the most powerful agents in the treatment of this disease, that we are in possession of, & aside from its emetic properties He said "that it acted as a specific, on the effected membrane, in repelling the disease" It has been used by my Preceptor for a long time, who also testifies to its great power, by the many happy results which he has brought about by its administration. & I may also add my own experience, which although in its infancy, yet it is not without some interest. I have used Blood Root on several occasions in the treatment of Croup, & have always been pleased with the result, but never more so, than in the case of the little girl, which I have referred to on a previous page. At first from the suddenness of the attack, & absence of fever, & heat of the skin I supposed it to be an attack of false Croup, but becoming satisfied that such was not the case, I applied cloaths rung out of hot water to its throat, & gave it an infusion of Blood Root in teaspoonful doses every ten minutes until vomiting

was produced, when it threw, in about three quarters of an inch of plastic length in a tubular form, which produced immediate relief to the patient, satisfied me that my diagnosis was correct. I administered an opiate, the child soon fell asleep, & had no more return of the Croup. Blood root may be given in the form of a saturated tincture, which I prefer to the infusion, in doses of from one to two teaspoonfuls, according to the age of the patient & the violence of the attack, once in 10 or 15 minutes until vomiting is produced.

Stephen F. Comeroy

The most careless observer of vegetable & animal life, has doubtless noticed the influence of atmospheric air upon the plant, as well as upon the human organism. He has perhaps wondered why the tropical plant, which flourishes so well out in the open air of the summer months, grows pale, slender, sickly, in the warm conservatory. While the soil in which it grows is carefully supplied with those elements suitable for its nutrition, and with moisture to liquify these — while the temperature of the air is uniform, carefully ascertained at a degree at which it has been observed to flourish best, and also kept impregnated with moisture, he is at a loss to conceive the real cause of its gradual

decline and death. Not at all unlike this are the manifestations of debility & disease, arising from similar causes in the human system. Our patient is nourished properly & abundantly, is suitably clothed, protected from the changibility of temperature by sicks & Retinals, is gaurded from exposure to moist & chilly airs, — but still grows feeble sickens, & lingeringly dies of consumption or some other disease of kindred origin.

Again, the Horticulturist has seen how frequently when such premature death is stealing over his cherished plant, that on removing it once more with the return of spring to the open garden, it revives, recovers its tone & becomes vigorous & healthy again. And the Physician has no failed to frequently notice, when pallor, feebleness & gradual decline are showing

the presence of disease sapping the foundation of life in his beloved patient, that the daily ride, or the fancy life has lent new vigor & energy into all his system.

What is done, we now ask, to the plant, or to the man, that, when it is housed, it should die? And, why is health restored on the removal of the one to the garden and the other to a constant out-door activity. We answer, in the one case, it is deprived of an element, indispensable to a healthy performance of its functions, and in the other case, this is restored to it. And this element equally necessary to animal & vegetable life is atmospheric air, and is made subservient to all organic life by a process called Respiration.

It is our purpose to investigate into the anatomical structure of those organs by which this process is performed

ed; and, secondly, into the effects produced by Respiration both upon the air, & upon the system.

The principle organ of the plant adapted for this purpose is the Leaf. It is not necessarily confined to this, but embraces the green surfaces of the stems of such plants as the cactus. The structure of the Leaf is eminently cellular and these cells are not heaped promiscuously together, but are arranged in regular order, upon a plan which varies in different parts of it according to the different conditions in which it is placed.

In the horizontal expansion of the leaf, one surface is invariably presented to the sky and the other to the ground. The parenchymatous structure of it is divided into two general strata, different in character, and each performing functions peculiar to it. The upper stratum of parenchyma consists of one

or more layers of oblong cells, placed with their long diameter perpendicular to the surface. These are compact & exhibit little or no irregularity in their arrangement. The cells composing the lower stratum are loosely scattered thro' the mass, with numerous & free interstices between them. The general arrangement of these, is with their long diameter parralel to the surface of the Leaf. These vacant spaces communicate freely with the external air, by means of small perforations in the epidermis of the Leaf, these being protected by a valvular orifice. Their number is found to be far greater on the underside of the Leaf, the only exception to this living in aquatic plants or those whose leaves float upon the water.

The resemblance of the Leaf to the Lung in its general structure is so

striking as to be worthy of remark.
Like the Leaf, the Lung is essentially cellular in its texture. Like the Leaf, it has its cells or tubes for the conveyance of the Nutritive Fluid and its cells or passages for air. These are diffused more or less throughout the substance of each, so that each cell loaded with the elements of nutrition is contiguous to one containing air with only the intermembranous cellular septum intervening. But, this resemblance is more marked still, perhaps, in the cutaneous apparatus for respiration in the human system, or in lower grades of animal life, where simple capillary attraction, sustained by the "vis a tergo" of the Heart, is the chief means for the aeration of the Blood.

Respiration, in the animal, differs however, from that in the vegetable, in the simplicity of the structure of its apparatus devoted to these purposes.

also, a preliminary act to respiration is performed in the animal, which is not required in the plant, and hence, the necessity for an apparatus & force by which it may be accomplished. The Leaf floats freely in the air, while the Lung is only filled with air, by means of muscular power. Inspiration & Expiration is immediately essential to the purposes of Respiration & therefore of Life in the former, while the latter requires no such process. The tubular structure of the vessels for the conveyance of the nutritive fluid in the animal and hence of all their minute ramifications throughout the tissue of the Lung, is superceded in the Plant by a far more general arrangement of cells for the performance of the same office. In the latter we have no tubular vessels for the conveyance

of the sap from the root to the leaf — nor, any other vessels of a similar structure, to convey the sap thus elaborated in the leaf back through all the parts to be assimilated into its appropriate and various tissues. What, in other words is accomplished by the veins & arteries of the human system is performed mostly through the agencies of cells, in the Plant.

But, let us now pass to the consideration of the effects of Respiration. To inquire in what it consists, what its effects upon the air are, & what is accomplished in all organic Life by this process.

This function strictly "consists in the evolution of Carbonic Acid from the fluids of organized Beings, and the absorbtion of Oxygen from the surrounding medium in nearly the same proportion.

Our purpose, in regard to Plants is to consider it in a wider & more extended sense, embracing the "sum-total of the changes produced in the air by the growth of vegetation," and as ordinarily considered, antagonistic to the same function performed in animals. We shall recognize in Vegetable Life two sets of changes in the proper performance of Respiration, viz. one in harmony with animal Life, which is proper Respiration, and the other, a change directly contrary to it — both these producing & giving rise to the ordinary acceptation of the term. It is not surprizing that the first change namely, the evolution of CO_2, and the absorption of O. should have been masked by the more marked change, viz. the decomposition of CO_2 in the air, the fixation of its Carbon in the vegetable tissues, and

the consequent liberation of its Ox-
ygen, — a change entirely opposite
to the first mentioned one.

Experiments have fully demonstra
ted a fixed Law in the Economy of
Life, that miscible liquids of dif
ferent densities & properties, with
an intervening septum, are attract
ed to each other, & become mutu-
ally diffused through each other.
And this same Law obtains in
reference to the diffusion of Gases.
Moreover that different substances
possess this property of diffusibility
in varying degrees, and that this
will continue
to exchange between the two fluids,
until their density is nearly the
same. Science has demonstrated, still
further, the fact that "a Liquid
charged with any gas, which it read-
ily absorbs will part with it when
exposed to the attractive influence of

another gas; & the more different the density of the two gasses the more rapidly and with more force will this take place". These are the known phenomena of "Endosmosis" and "Exosmosis", and will afford a Key to the explanation of the respiratory process, in its effects upon the air, & upon the nutritive fluid.

Analytical Chemistry has proved that the structure of proper vegetable tissue is uniformly composed of Carbon Hydrogen & Oxygen, and that these are furnished to the vegetable through the food it draws from the soil & air. It has also been shown that all these constituents of the plant are absorbed by the agency of roots, excepting the Carbon which enters so largely into the tissue of the Plant — that the Roots absorb chiefly liquid, while the Leaves inhale chiefly gaseous food. Carbon

is itself a solid, absolutely insoluble in water, and therefore incapable of assumption by the plant. It forms, however a combination with Oxygen and appears in the gaseous state of CO_2, which is directly absorbed by the leaves, thereby furnishing Carbon to the tissues. This decomposition of CO_2 is effected through the agency of the upper parenchymatous strata of cells, and in some way or other, yet unexplained, thro' the more immediate agency of the green coloring matter contained within these cells, when under the influence of Light. The Carbon, then, of the CO_2 of the air is appropriated by the vegetable tissue, while its Oxygen is given back free to the Atmosphere.

By means of the free communication of air between the cells containing the nutritive fluids, numerous va-

por & is being constantly exhaled from these nutritive cells, concentrating by this process their contents for purposes of nutrition, and so loading the atmosphere with vapor which again condensed serves as the medium of bearing fresh food again to the numerous roots it- bathes. This exhalation or evaporation takes place through the stomata or Breathing Pores, before explained, situated mostly beneath the surface of the leaf.

But, the imbibition of Carbon is not so constant, as may have been supposed. It only takes place while under the influence of the Solar ray. In the Day time, we find an exhalation of oxygen, then, resulting from this decomposition, while, at night it is entirely suspended. But that which constitutes the real process of Respiration is more noticeable

in the night. ~~through~~ constantly going on "in day & in night—, ~~by~~ sunshine & in "shade", and when checked producing death. It is the disengagement of superfluous Carbon, either by combination with the oxygen of the air, or by replacing with CO_2 the O. the oxygen which has been absorbed from it. This excess gas is simultaneously with its exhalation watery vapor, & mostly from the same side of the Leaf — the vapor affording a convenient medum for its disengagement. The accumulation of CO_2 in the tissue of the Plant (as well as in the animal) seems to arise from the disintegrating changes which are always going on in the system of the living Organism; and from some of these chemical operations which necessarily anticipate in the constructive functions. This gas may have been

brot up in the ascending current of crude sap, and finding its exit thro' the cellular tissue of stem & leaf. It cannot exist as CO_2 in leaf wholly, or in the O_2 superfluous Carbon in the leaf does not exist as CO_2, but only as solid since Oxygen seems to be absorbed, for the mere purpose of eliminating the superfluous carbon in the form of a fluid.

In the animal system, we find the Oxygen of the air replaced by CO_2, exhaled in the Respiratory act. If the blood come to the Lungs charged with CO_2 gas and be exposed in their cells to the influence of atmospheric air, an endosmose of oxygen will take place, while a counter current of CO_2 will pass out. As in the vegetable kingdom there will also be a variable amount of aqueous vapor, exhaled, formed both by the union of H+O, within the cap-

illaries of the general system & of the lungs, or mostly existing as water in the lungs & capillary vessells.

Respiration, then its strict & proper meaning, both in the vegetable & animal kingdom is attended with the evolution of CO_2 & aqueous vapor, in its effects upon the atmospheric air. But in the more extended sense, it is attended in the vegetable kingdom by the evolution of oxygen gas, resulting from the decomposition of CO_2, and of aqueous vapor.

We have already anticipated the effects of this function upon the living system. In the Plant, considering Respiration in either sense, it is immediately and absolutely essential to Life, since without it the carbon, entering so largely into its structure cannot be absorbed (only but slightly,) which of course will be depriving it of its being, or the CO_2

gas accumulating within the tissues of the Plant, act upon it directly as a poison. Carbon is essential to the plant in the same sense that food is to the animal, while an escape of its excess is as necessary to its life, as is the escape of excrementitious matters in the same.

But the Oxygen inhaled into the lungs is more immediate for the purposes of animal life than for vegetable. For it is only by this process of absorbing Oxygen from the air, and replacing it by the CO_2, exhaled from the blood in the pulmonic circulation, that the blood is prepared for assimilation into the various tissue of the body. And I suggest the inquiry whether the chief object of the introduction of Oxygen into the system is not to afford ~~afford~~ at the capillaries an attractive influence for Carbon, produced by the constant decay of the tissues, reducing it to such a form

that it may be returned through the venous channels to the lungs in a gaseous form, already prepared for an easy & rapid escape according to principles already explained, into the atmospheric air within the air-cells

The necessity for a constant aeration of blood by means of Respiration is obvious. For the effects of its suspension is immediate & fatal. Nature has afforded all living systems a bountious supply of air for this purpose & in a state best adapted for animal & vegetable consumption. She hangs thousands of square feet of leaves upon the tree, in perpetual motion through the ever-moving air to catch the minute quantity of CO_2 floating thro' it. She spreads hundreds of inches of surface to the action of oxygen in the lungs. But so careless are we that we deprive ourselves of it, suicidally, ab-

stenious, of that which is as much our aliment as the food we eat. Are not pister views on the importance of air a pure air to the purposes of life necessary when such scourges as consumption, and "zymotic" deseases, afflict society so largely. And should not the Public understand that with proper protection against the vicissitudes of the weather, and with a proper diet, it is absolutely essential to life & Health, that no small portion of the day should be spent in the open air — that neither cloudy skies, nor East winds, slight falls of rain or of snow, should deter them from fulfilling this first duty — Remember, — that the great risk is in "staying in doors", rather than in going out".

Scarlet Fever

Happy and rare indeed is that community which has never learned from painful experience the nature of Scarlet Fever. Few diseases at the present time demand more attention than this. Consumption sweeping off one fifth of our young and middle aged rubs the day and to her dread power we as yet have been able to oppose no effectual barrier. This scourge less fearful in its ravages yet as it sometimes follows our guiding we may hope by careful study and observation to disarm this disease of its dread power and allay the anxious parents fears. Whether this disease was one of the scourges of the ancients we cannot say as until

quite a recent date. The close of the 18th century it was confounded with Measels and until the middle of the 17th Measels - Small Pox and Scarlet Fever were considered identical in 1516. Inpassions makes some mention of a disease which we may suppose to be this, but it was reserved for Dr Withering in a publication of 1793. to distinguish this from the other diseases with which it had been blended in the minds of the Physicians of the 18th century and exhibit it in its true light - a separate disease In spain a disease either Measels or Scarlet Fever appeared in 1610 and in the next eight years wended its way across the Appennines to Naples where it raged with terrific power consuming half a Million of people In 1735 it came a Chastening rod to our Pilgrim Fathers carrying

terror and dismay to their stout-
hearts. sweeping off whole families
leaving Parents childless and
casting a gloom over the whole
community. Commencing in Kingstone
New Hampshire. it pursued a westerly
course reaching the Hudson river
in two years. two hundred miles - in
some places it was mild in others
it raged like the plague -

Scarlet- Fever is an infectious continued fever; deriving its name from one of its most- prominent- and constant physical characteristics its scarlet- eruption: It prevails at- all seasons in temporate climes either in an Epidemic or a sporadic form although principally in the Spring and Fall- In the warmer regions it- more frequently assumes the epidemic form, appearing with especial malignancy, and pow. after intervals of expose: waiting; seemingly that- it- might- concentrate its poisons; and pursue its work of destruction with renewed vigor. Although, it- sometimes seems to scorn all fixed regulations and appears in a complexity of forms which defy any and all classification. yet generally; it- may be ranked as one of the three varieties which most- observers give it- The Simple, Anginose, and Malignant. And there is perhaps no

other disease which has been classified in which its forms are more strongly marked, than in this. A case of Scarlet Fever pursuing its regular course exhibits three stages. 1st The State of Invasion. 2nd That preceding the Eruption 2nd " Of Eruption. 3d " Of Desquamation. The period of invasion is generally very sudden; The child; for it is chiefly a disease of childhood, it may be has been at school all day, and returns home at night, in as good health apparantly as when he went in the morning: save a little dullness and weariness which are attributed to the fatigues of the day; eating his usual supper; he is put to bed but passes a restless, and feverish night: often awakes; and calls for drink. he complains of thirst, and soreness of throat, his skin is hot, and dry; his head aches: his pulse is frequent and full his tongue coated with a thick white

fun causes him to complain, that his drink is not good; he tosses about in his bed often wishing for morning to come. which usually shows the second stage of the disease - the eruption - or while at play with his companions may complain - of being tired, and wish to sit down, of pain in his limbs, and back, of his head aches. of being cold. becomes dull vomits or is sick at his stomach, as he says, and of soreness of his throat, and should he not. were it examined, the fauces would doubtless appear reddened, and somewhat congested, and this is scarcely a less constant attendant upon the disease than the eruption: the throat being always more or less affected. The mucus membrane is of a deep red color, the tonsils so swollen, as to render deglutition somewhat painful, and difficult: the inflammation sometimes ascends to the posterior nares, causing

there a sense of fullness and occasionally there is hoarseness. The secretions are deficient, the bowels costive, the urine scanty and high colored altho' sometimes it is albuminous; In fine its invasion is marked by a greater or less derangement of all the functions: The circulation is increased: digestion is impaired. The nervous system is deranged and the secretions are deficient: animal heat sometimes deficient- is often much increased.

The Eruption commencing at the close of the first or beginning of the second day usually appears first upon the face and neck: descending it traverses the whole surface increasing in intensity until the fourth day; when it reaches its maximum. It appears in minute red spots upon a rose-colored ground, forming patches of an irregular shape, with portions of healthy skin between: disappearing upon pressure and which rapidly unite so as to form

uniform deep red hue over large spaces.
The eruption is most intense upon the back and of a deeper hue than about the flexures of the joints, the insides of the thighs and surface of the abdomen where it is abundant. but of a more florid appearance. The true eruption of Scarlet fever is not elevated above the skin. but often there is mingled with it commonly at its commencement drops of miliary vesicles which cause it to appear so. Sometimes the face, hands and legs become more or less edematous during the period of eruption. The symptoms which attended the period of irritation do not subside upon the appearance of the Eruption but continue unabated and often are increased. The face assumes an unnatural expression, the eyes become injected and preternaturally animated. Sometimes delirium appears at night and convulsions

in young children. The pulse increases in frequency, beating from 120 to 150 per minute, and some have found it as high as 160 or 170. The heat of skin increases amounting to 104° and sometimes as high as 110° F. and is attended with a disagreeable itching and stinging sensation which renders the patient cross and restless, and which resists the ordinary means of procuring sleep and rest.

The disease in the throat is also augmented. The tonsils continue to swell and they pour forth a thick tough, white mucus resembling a false membrane in appearance. Causing the patient much trouble to remove it. Keeping him constantly hawking and spitting. The inflamation may extend to the larynx causing hoarseness and cough from the irritation there. Thirst is extreme, the tongue coats with its thick white fur of the period of irritation and becomes smooth of a bright-

shining red. somewhat like a piece of raw beef. Sometimes the projecting papillae render it strawberry like in appearance. In some cases the tongue assumes a thick dark fur resembling its appearance in Typhoid Fever. The weakness which at first was quite marked continues to increase

The color of the Eruption varies much in different cases, in mild ones being of a bright florid tint, and from that varying to a deep violet, being somewhat in proportion to the typhoid state of the disease. In cases of a marked typhoid state vibices appear and sometimes bullae filled with a yellowish serum. dark blood is at times effused between the layers of skin caused by an extreme depression of the vital powers and a poisoned state of the blood. The eruption in some cases is wholly wanting, and there

have been Epidimics in which this singular
circumstance was particularly prominent-
affording cases in other respects of
well Marked Scarlet-Fever, but-with no
Eruption. in many of them there
doubtless was Eruption. but- from its
evanescent- character. was not- observed
but- the fact- that- others have contracted
a disease in all respects similar to
Scarlet- Fever from this patient- leads us to
believe that- this was Scarlet- Fever. The
Eruption having reached its- Maximum
about- the fourth or fifth day remains
for a day or two. "in Statu Quo" and then
Stationary
pass into a stage of decline. Constituting
the third state that- of Desquamation
which is often ushered in by a slight-
increase of febrile Symptoms. or a minution
of urine. which deposits a whitish or a
dark red Sediment. or a diarrhea, may
constitute the crisis. It- commences
usually where the Eruption first- made

its appearance and follows the same course that it pursued. With the decline of the eruption the symptoms begin to subside. The skin loses its heat tho it still remains rough. The pulse diminishes in frequency. The swelling of the tonsils abates the beds of lymph are thrown off. deglutition becomes more easy, and the tongue returns to its natural state. the skin is thrown off from the least exposed parts of the body in thin bran like particles: but from the hands and feet it is often removed in large patches, forming a complete cast for them. The whole process usually occupies some twelve or fifteen days. The skin continues somewhat dry and rough and there is some degree of itching and irritation attendant upon it."

Scarlet Fever varies much in severity, form and complication, in this respect much resembling Measels tho in a more.

remarkable manner. Scarlet Fever may be classed in one of three divisions. Scarlet Fever Mites Scarlet Fever Anginosa Scarlet Fever Maligna. I shall class under the head of Scarlet Fever Mites all cases in which the throat is but mildly affected. occasioning the patient but little trouble or pain yet which on examination shows that the fauces and upper part of the Pharynx, are more or less inflamed. The febrile movement is slight and the efflorescence, a scarlet blush upon the face appears early and subsides at an early day. with but partial desquamation of the cuticle. This variety is the one accompanied by dangerous sequelae which constitute its greatest danger. it occurs at any season frequently in connection with epidemic erysipelas and the severer forms of the same disease "Scarlet Fever Maligna". Scarlet Fever Anginosa comprises cases in which the throat symptoms are more

prominent - in this variety the fever is of a high grade even before the eruption makes its appearance. Setting in with a sore throat - and swelling of the Sub-Maxillary glands producing stiffness of the jaws: the fauces and throat are intensely inflamed. The tongue has a thick white fur through which the elongated papillae protrude. The tonsils covered with a thick white or grayish secretion from the salivary glands. Swell impeding deglutition often causing liquids to return through the nostrils. Along with this internal disease there is almost always swelling of the external parts in the region of the Submaxillary and Parotid glands. this has even been considered the essential part of the disease. The eruption in severe cases may not appear until the third or fourth day. or having appeared early may recede depending much upon the intensity of the fever and any internal complication

The patient is affected with symptoms of Coryza. The Eustachian tubes may become inflamed producing temporary deafness and often through ulceration of the Membrana Tympani permanent deafness. tho this may not appear for months or even years. The mucus (or Schneiderian) membrane of the nose often is affected pouring out an acrid discharge which irritates the alae, nasi, and excoriates the lips and whatever part of the face it may come in contact with producing troublesome sores which will require often treatment - a similar discharge is

poured forth from the throat and finding no other way of egress is carried into the stomach produces diarrhea and excoriation of the anus. or else being taken up by the absorbents kindles up anew the disease. May not the instance of Croup which sometimes are complicated with Scarlet Fever, be caused by this acrid discharge

entering the Trachea? The parts about the throat sometimes suppurate. laying open the mucous and sometimes large blood vessels. by the process of ulceration, Dr Woodroff of New Britain in his practice met with a case in which the. External Carotid was severed. Scarlet Fever Anginosa may then be distinguished from the other forms. by the severity of the throat affection and the high grade of febrile excitement."

Under the head of Scarlet Fever Malignant we may include all the cases which are marked by a low typhoid tendency which is the characteristic of this variety. the disease of the throat is severe. giving the name of putrid sore throat to it. and is attended with great swelling and ulceration of the throat and extending up the Eustachian tubes of the bones of the Ear. yet it seldom assumes the high inflamatory state of Scarlet Fever Anginosa. for although the disease may at first

assume the inflammatory condition it soon becomes typoid, with a pulse quick feeble. frequent - and often irregular. the function of animal heat - is greatly disturbed the surface being hot - in one place and cold in another. or flushes of heat - may be followed by chills and rigors. The respiration is pre naturally slow. or hurried and irregular. Some dark spots appear deep in the skin as "tho" they were striving to get - through but the overwhelming power of the poison overcomes all Natures attempts towards recovery and the patient soon sinks. In other cases where the poison was not so great. or there was a greater strength of constitution to resist - we have the symptoms of the second variety more marked. but - severe pains in the back loins and extremities a tardy eruption dark colored with dark gray exudations in the fauces and a throat of Mahogany color. a tendency to recede in the eruption. a dark brown tongue. teeth covered with sordes fissured

lips Easily made to bleed petechiae. Vibices and a tendency to gangrene establish the character of the Malady--

Sequelae. Among the most common of its sequelae are abscesses of the Parotid and Submaxillary glands. which may carry off the patient by their exhausting discharges. worn out as he is by the fever. or following the Eustachian tubes may seize upon the tympanum and small bones of the ear and result in Otorrhea and permanent deafness. Ozena may arise from chronic inflamation of the Schneiderian Membrane. But of all the sequelae the most common and dreadful is dropsy usually commencing in the second or third week of the disease during the 3d stage or period of desquamation altho in some Epidemics it seems to be rather a concomitant than a sequel of the disease as it commences during the period of irritation or Eruption. It most frequently

happens in mild cases perhaps because then the patient is less careful of exposing himself to the cold and damp winds which are the causes most frequently recognized by observers. inasmuch as patients who in every respect were convalescent after exposure to cold especially cold and moisture, have been immediately taken ill of dropsy. but some as albuminous urine has been voided by persons afflicted with Scarlet Fever. I would attribute all dropsies attendant upon this Fever to fatty degeneration of the kidney. but the fact that the dropsies of Scarlet Fever are readily curable while that of granular degeneration of the kidney is very seldom so, would excite suspicion as to their identity of cause. The Symptoms which indicate the advent of dropsy are a feeling of languor. an irritable or pevish state attended with an increase of fever. the skin becomes dry again and heated the pulse is harder and more frequent.

thirst- is more urgent- the appetite which had begun to return is diminished and the bowels constipated urine is diminished Nausea and vomiting may be present- The Effusion usually commences about the eyelids, become puffy The skin over parts into which Effusion has taken place is hard and tense- does not readily pit upon pressure The amount of Effusion is usually quite small. This it may be so great as to impede locomotion when the body and lower Extremities are affected Sometimes Coma results from Effusion upon the brain May we not suppose that some of the deaths by coma result from unlimented urea- The urine of dropsical patients is sometimes mixed with blood always of a darker color in severe cases it is almost black its specific gravity is increased and the urine is coagulable by heat- Dropsy may affect any of the internal organs Constituting

Hydro-Thorax Hydrocephalus &c.

Scarlet-Fever is usually considered an infectious disease although doubted by some - who may be classed among the free and liberal minded men of whom Dr Watson speaks. for if there be such a thing as Contagion I think we may consider it one of the effectual and frequent causes of Scarlet-Fever. As we often see Scarlet-Fever originated in districts - previously healthy by the arrival of persons infected districts - The transmission of clothing which has been ~~dying~~ exposed where Scarlet-Fever patients were lying. to healthy families has originated it wherever there. A very respectable and intelligent practitioner of a neighbouring city - assured me that - he believed he had been the unwitting cause of the spread of Scarlatina whilst visiting patients ill of Scarlet Fever from closing his coat before he had left the house thereby wrapping the fomites of the disease about him. which found egress when he next laid open his coat. The period of incubation ranges

from three to twelve days although the fomites have a tenacity of life which is wonderful germinating weeks after their imbition Like small Pox and most of the Exanthemata Scarlet Fever by one visitation seems to destroy all of the fermentable matter of the blood and thereby secures the patent from a second attack and perhaps affording a reason for its Epidemic visitations Some persons from repeated exposure or a redundancy of fermentable matter have it in a mild form a second time (Adults are less liable than Children to suffer from this disease as they have it more frequently in childhood) Many practitioners whilst attending Scarlet Fever patients Experience a sore throat — why is the throat so often seized by this disease? Is it because of the continuity of the skin and mucus Membrane and the abundant supply of atmospheric air and consequently of oxygen to those parts which are so abundant in mucus membrane producing rapid and

extensive organization of the tissues thereof?

Diagnosis.

Prior to the eruption it is difficult if not impossible to distinguish this from the other fevers the general symptoms being in many respects the same. if there is any particular indication that Scarlet Fever is to result it is the quickness of the pulse and redness of the fauces After the eruption has made its appearance there may arise some difficulty in distinguishing it from Measles but the quickness of the pulse the absence of catarrhal symptoms. the appearance of the eruption upon the second day. with redness of the fauces mark the advent of Scarlet Fever Whilst an eruption upon the fourth day dark in color crescentic in shape attended with coryza fills us that we have measles.

Prognosis

However difficult and uncertain our

Diagnosis may be. Our Prognosis must be much more so. for when we have formed one and as we suppose carefully and judiciously we cannot rest assured that it will hold true for as severe so exceedingly variable is this disease in its character— To women who are pregnant or who are in the puerperal state Scarlet Fever is a fearful disease being often fatal. The late appearance of the eruption—its dark color—a tendency to recede—bullae—vibices ecchymoses.— in fine every thing indicating a low and typhoid state are bad symptoms. On the other hand slight—fever slight—difficulty of the throat—an early and bright—Scarlet-eruption may be considered favorable symptoms—and dangerous only in their sequelae—but even these cases must be watched

Treatment—

The judicious treatment of Scarlet Fever must necessarily be exceedingly varied

to accommodate itself to all its sums and complications. Scarlet Fever Mitis requires scarcely any other than an expectant mode of treatment. a close surveillance that no other disease may combine with it, or succeed it. a mild laxative with refrigerant drinks being sufficient with Nature's aid to restore most patients to health. In the Anginose form more active measures must be taken an emetic of Ipecac. or Ipecac. and antimony happily modifies the symptoms of invasion. This should be followed by a gentle laxative either a Seidlitz powder, or Magnesia Rhubarb. Selected according to the state of the system. This disease from its usual Asthenic character rarely admits of bleeding except it may be occasionally a few leeches may be beneficial in extensive swelling of the external tissues of the throat and of the submaxillary gland. When there is great heat of the system cooling and refrigerant drinks must be given.

The Nitrate and Chlorate of Potass, Acetate and Citrate of Ammonia, Sweet Spirits of Nitre and Dover's Powders, may be given to alleviate nervous excitement and aid the diaphoretic and diuretic powers of the Salts. The wine of Colchicum has been given from its supposed powers of Elimenating Urea. - Death from Asthenia is most common - which we must combat with Stimulants and Tonics.

Topical Remedies

The Eruption if tardy in its appearance may be promoted by the warm bath, in which mustard or some other strong rubefacient has been mingled. The throat often demands especial treatment. gargles of Capsicum and Salt. Nit of Silver. Sulph Zinc. or some of the regitable Astringents Catechu. Kino. Berberry root. Geranium Maculatum. be are of great service in some cases of the Anginose and all of the Malignant varieties. in Children too young to use the gargle. these may be applied by the probang or Camels Hair pencil. powdered ice

Externally and ice taken internally have been highly efficacious in the hands of some — Tinct of Colchicum and Belladonna given so as to produce a specific action upon the throat — proves with some an efficient remedy with some for the difficulty of the throat."

The practice of annointing the whole body of the patient with some unctious substance demands our attention both from its supposed theory of action and its alleged results attending its practice. The surface of the skin in Scarlet Fever much resembles its appearance after exposure to heat resulting from too rapid oxygenation of the tissues. Oil will moderate this and by its emolient effects render the skin soft and pliant. It is also claimed that this process lessens the infectious character of the disease by preventing the diffusion of the bramy particles of skin through the air and that the sequelae are less frequent and dangerous in their character. Sponging with water of a temperature to suit the patients feelings is of great benefit

Prophylaxis.

Can this disease be prevented has often been anxiously asked and many have fondly believed that they have discovered a charm potent to ward off this dread intruder. Yet still in spite of Fetish Waters hot and Medicated this disease has pursued its way seemingly quite regardless of these puny barriers. To accomplish its slaughter of innocents like its Royal predecessor "Herod of Old" no one of the thousand raunted protectives has been more generally received than the use of of the Atropa Belladonna in shadowy doses and consequently none have lulled so many into fatal security. As far as my observation or research has extended, I can no authority sufficient to convince me that this disease can be prevented by medicines given internally, or cut short when once it has made its invasion

Atmospheric air,

Considered in its relation to The Human System

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Means to an end seems to be the universal characteristic of the creation.

The world when a moulton Globe could not have been surrounded with the present atmosphere, for water at that temperature could not have remained in its present liquid form, gases now combined with some other gases, liquides and solids, remain fixed, must have been in thir original and elemetary forms, and some of the metals even were aëriforme bodies, and hence the Earth was totaly unfit to sustain life in any form whatever. But by a beautiful and simple process, this prejudicial atmosphere was clarified, viz by a gradual cooling

of the globe, when the metals of higher specific gravity took the successive forms of ligids and solids, so gaseous bodies united with other gaseous bodies and took thire present forms. This however was a parcial purification. there was an other compound which still remained unchanged, and still be found in our atmosphere to a very small extend (one fivе hundreth part), Carbonic acid was still mixed with the air. This substance though united with large number of metallic and earthy substances, yet there remained - if we may so to speak a large surplus in hand, and therefore the air was still unfit to sustain animal life, was converted into that which became food to the animal, and both food and a sorce of plasaer to men. Thus the vegetable kingdom sprung up with its beautiful forms and manifold utility in the medical art. As this

poison diminished in the atmosphere, so the animal kingdom rose in the scale from the lowest trilobite until at length the when the air reached to its maximum purity, man was created. he can not live in an impure atmosphere, therefore the means thus prepared to the end, that man might live.

The subject is contemplated under the three following heads viz.

1st The physical nature of the atmospheric air.

2nd Its chemical composition.

3d And specially its physiological and therapeutical connection with the human System.

1st The physical nature of the Atmospheric air.

This globe (the Earth) is surrounded with an ocean of air, caled the atmosphere about fourty five miles deep, and it is in constant motion, which is

caused by the heat of the Sun, air in its tendency to preserve the equilibrium of its density, rushes into the rarefied spot, this is owing to its atoms being perfectly moveble on eachother, and this causes the eastant change of air in a given spote, which is one of its esencial qualities to sustain life.

This ocean of air is equal in weight to an ocean of water surrounding the Earth to the depth of abant thirty two feet, or to an ocean of mercury occupying the same space to the depth of abant thirty inches. A column of air occupying the same or equal base with that of a column of mercury thirty inches high, will weigh the same, now a column of mercury thirty inches high, and having for its base one square inch, it will weigh about fifteen pounds, therefore a column of air having the same base, will weigh about fifteen pounds. i.e. a column of air

having one square inch for its base will press on, the same as a fifteen pound weight would, or in more general terms, the atmospheric pressure upon a square inch is about fifteen pounds. From this fact an interesting and curious inference may be made, which is the following. A man of ordenary size presents a surface, in round numbers, about one thousand square inches, and therefore he sustains a pressure equal to one tousend atmospheres which is equal to fiften tousend pounds, without any difficulty or even perseption. If this individual was put under ~~under~~ a receiver and the presure removed by an air pump, the tendency of the particles of his body will be changed, for by the atmospheric presure all the particles of the body are forced towards the center of the body, if therefore this presure is removed according to the mode just been mentioned, then the direction of the force will be from

the center to the circumference. This will account the rupture of arteries of some travelers who ascend the high mountains where the air is less dence and hence it has less pressure upon the body.

2d 4th The chemical composition of the atmaspheric air.

Pure air consists of four fifths of Nitrogen and one fifth of oxygen by volume, and 28 of Nitrogen and 8 of Oxygen by weight, from this it is evident, that there are two equivalents of Nitrogen and one equivalent of Oxygen. The equivalent number of the Nitrogen being 14. and that of the Oxygen 8. These elements do not form a chemical compound in constituding the air, but a mechanical mixture, when electricity, however, passes through this mechanical mixture, in the form of lightning then these two elements unite chemicaly and produce a chemical compound, caled Nitric acid which unites with the amonia in

in the air, which is soluable in water, ~~and~~ and it is appropreated by the nitrogenous plants for their subsistance.

There are other materials which are mixed with the air. though they do not constitude any esencial part of the same. The most prominent of these are, the watery vapor and the carbonic acid. The others such as sulphydric acid, phosphorated hydrogen gas, amonia, are not so uniformly diffused through out the surface of the Earth as the former ones. The latter being exhaled from the marshes and decaying materials. Besides these there are the innumerable eggs of the animalcule, particles of verious materials &c. floting in the air.

Nitrogen, one of the elements that constitude the air, is a gaseous substance and its properties are of a nagative character, its use in the air is mearly to dilute its oxygen. If a living animal

it put in a vessle containing pure nitrogen gas - the animal will die, not because nitrogen does it positive injury, but the animal dies mearly from want of vital principle, the oxygen of the air alon supplies this -

The other and the most important element in the composition of the air is the oxygen gas - It is the active element of the air, it supports combustion and therefore life. But in its pure state it is too active, and therfore destroys life, by using the material for combustion too fast, but when it is diluted four times its volume, then it becomes perfectly harmless - and the source of life. This will be better understood by studying the action of the air on the human system, and this will bring us to the third division of the subject.

3d The atmospheric air considered in its physiological and therapentical relations to the human system.

By the act of the respiration a certain quantity of air enters the lungs, and in the air cells of the same, it meets the venal blood, and, according to the most commonly accepted opinion, then and there oxydizes the iron contained in the blood, (the iron in the blood being regarded as the vehicle of the oxygen) and caried by the arterial blood into the capilaries, and there a combustion is set up. The oxygen of the air burning the refuse materials there, (being cast out by the system,) unites with the carbon and hydrogen of the same, forming carbonic acid and watery vapor, which are brought back by the venal blood to the lungs, from which they are expeled by the act of exhalation. The air when first entered the lungs contained one fifth of its volume oxygen, now it is found to contain only one sixth, the balence being replaced by carbonic acid and watery vapor.

The oxygen of the air supports life in two ways; first- by puting the refuse mater in the capilaries in such a form as to be capable of being conveyed away and be expeled by the lungs, and secondly - the oxygen in preparing the refuse mater in the capilaries to be thus expeled, burns the refuse mater, which is attended by heat, and thus supplies that which is caled the animal heat.

The carbonic acid which is expeled by the lungs is an absolute poison to the respiratary system, air containing one tenth of its volume carbonic acid, will destroy life, it does this in two ways; first- it occupies the place of the oxygen in a given volume of air to be inhaled, and thus preventing the enterence of the proper amount of oxygen into the lungs, and, secondly - it converts the arterial blood into venal, and thereby deprives the heart of its proper stimulus and

causes death by asphyxia.

The watery vapor does not act in the same manner as carbonic acid does, by actual contamination of the blood, but by preventing it from being purified by the oxygen of the air. Air being surcharged with watery vapor, it contains less oxygen in a given volume of air to be inhaled, therefore when it enters the lungs it contains less quantity of oxygen, compaired with an equal volume of pure air, and therefore, there is less amount of combustion in the capilaries, less amount of animal heat is generated, the blood is less purified, and the heart is again deprived of its proper stimulus, and again death is caused by asphyxia or rather by apnœa.

Exclusion of the air from the lungs by any means causes death by apnœa i.e. by want of breath, or more properly from the want of the proper amount of

oxygen, to keep the blood in that condition in which alone it is capable of stimulating the heart to action

The air, therefore that was breathed once, is highly injurious to breath it over again, in consequence of its containing <u>less</u> oxygen and <u>more</u> carbonic acid. The individuals who live in such an air, who are often students and professional men, will feel speceally a nervous depretion, causing dulness and disinclanation, either to mental or bodyly labor, there eyes are rendered langueid, and the expression of their countenence listless. The best remedy for such undoubtedly is exersize in the open air and in the sun light.

The temprature of the air.

The change of the temprature of the air affects the system in which a corresponding change takes place - to adapt itself to the temprature of the surrounding air. Philosophicaly speaking there is no such thing

as cold. the actual state is merely a comperative want of coloric. There is however such a thing as coloric. it is not a substance, it is that which produces effects in space, but occupies no space. in short it is a force, such as light and electricity are, which also occupy no space. these are, as they are caled imponderables - never the less we shall use the terms worm and cold air for convinionce sake.

The tendency of heat is to drive the particles of the air further apart, while in the absence of heat - the force of attraction of cohision predominates, and hence the tendency of the particles of the air is towards each other and a closer contact. It follows therefore, that the air in the winter and in the colder climets is denser than in the summer and in the worner climets.

What then is the effect of this differece,

of temprature upon the human system? The answer is - in the strictest sence - it has no effect at all. The animals are distributed in different climates according to their nature, a geographical limit is put to the distribution of each kind, according to their capacity of enduring heat and cold. The animal that lives in the tropics can not live among the icebergs and vice versa. But man is every where, his system adapts itself to the temprature in which he lives or may happen to live, and indeed this is one of the proves, that man is the lord of the Earth.

In winter or in the colder climate a volume of air containg more oxygen than in the summer and in the warmer climate. If the temprature of the air inhaled is zero - it immediatly rises to 98° Fahrenheit. and consequently the inhaled air becomes greatly expanded

and therefore it closly presses at every air cell, and thereby imparts more oxygen to the blood, in order that it may create more heat, to overcome the external cold, and maintain the uniform temprature of the system, hence the laplander drinks the whail-oil, inorder to supply the necessary amount of carbon to meet the excess of the oxygen of the air inhaled, or his lungs will be consumed, and thus the aparatus being destroyed, the generation of animal heat will cease, and death by asthenia is the resolt. And hence more solid and oliageneus food is necesary in the winter and in the colder climets than in the summer and in the warmer climets. to cause the blood to contain more carbon. or in other words to render the blood more dencer, for the accomplishment of which the nature herself assists in causing

the kidneys to work more actively in a cold temprature, to drow off the water from the blood, and thus render it more concentrated - to meet the demands of the extra amount of oxygen in the system. In the summer and in the warmer climets, however, a defferend mode of liveing is required. The inhaled air is warmer and therefore it does not expand so much as in the winter, and if the inhaled air is heated to 98° F. then it does not expand at all, and therefore it does not press upon the air cells with such an undue presure, and therefore it imparts less oxygen to the blood, just enough to maintain the natural temprature of the system. A lighter kind of food therefore is necessary. i.e. a kind of food, which shall contain less amount of carbon in a given bulk. vegetable is the best form of this kind of food, for it occupys a

greater space in the stomach containing
less quantity of carbon, and at the same
time the stomach is enabled to secrit the
usual amount of the gastric juse, while
the result of the dijestion will afford
less amount of carbon. (And therefore
a larger quantity of refuse material
must past through the alimentary
canal, and for this reason, a part of the
carbon is appropreated from the venous
blood, for the purpose of forming bile.
the liver therefore is more active in the
summer than in the winter, to suply
this large amount of refuse mater
with bile. Besides this the blood is
rendered more dilute in the summer
and in the warmer climates by the
thurst for water, which occupys the
place of more solid mater in the
blood, in other words the blood contains
less fuell, for there is less need for it. and
hence human exhaleations contain less

carbonic acid in the summer season
then in the winter.

From what has been stated it follows,
that one of the reasons why man can live
every where is because he is omivorous
i.e. he adapts his food to the temprature
in which he lives. And hence the
cause of treatment generaly adapted
for pulmonary consumption. Either
sending the patient to warmer climets,
in order to sustain more easyly the natural
heat, and thereby releaving the lungs
from excessive labor, which it can not
perform. Or feeding the patient on alia-
genous food, in order that carbon may
be more readyly supplied. so as to protec
the lungs themselves from being consumed
by concentrated oxygen of the cold air.
This treatment however is not aplicable
to the patients who have dispepsia at the
same time with pulmonary consumption.
for the aliagenous food must be digested

before it can be appropreated by the blood. in such cases alchahole in some forme is better fuel than any other, for it is immediatly absorbed, and need not be digested.

The Conclusion -

It has been said that man was not created untill after the air was perfectly purified, and from what has been said it is evident that pure air - sine qui non - is the condition in which human life can exist, and his system perform its proper functions healthfully. All the prescreptions made for patients must presuppose that the air in the sick chamber is pure, or the sickness is neither produced nor agrivated by the presence of the impure air, or poisonous atmosphere. otherwise all the remedies will do little or no good. This is well illustrated in the action

of the medicines during the prevelence of the epidemics, when they seem to loose their power, or act the contrary, owing to some poisonous matter in the atmosphere which seems to neutralize or prevent their action. Now such a poisonous atmosphere can be readyly created in a very short time in the sick room, if fresh supply of pure air is cut off, exhalations that rises from the defferent parts of the sick body is more than enough to render the air about the room a deadly poison. Hence it is the important duty of the attending physician to find out at once the condition of the atmosphere in the sick chamber, for the safty of his patient as well as that of his own.

Femoral Hernia.

The term hernia is commonly employed to signify the protrusion of any of the abdominal viscera from their natural cavity. The viscera which most frequently escape in this way, are the small intestines, omentum, & arch of the colon.

That portion of the parietal or reflected layer of peritoneum which the protruding viscera push before them, is called the Sac of the hernia. It may soon adheres to the surrounding cellular tissue. As the hernia increases in size, the sac also increases, partly by growth, partly by distension, & partly by fresh protrusion of peritoneum. Sometimes it diminishes in thickness; sometimes increases in thickness, & becomes indurated. The narrow part which communicates with the abdomen is called the neck of the sac. This always becomes thickened, rigid, & more or less puckered, in consequence of the pressure of the muscular or tendinous fibres which surround it.

Sometimes there are two strictures, or necks; either because it passes through two tendinous apertures (as the external & internal abdominal rings in oblique inguinal hernia) [illegible] has been pushed down [illegible] predisposition. A hernia may be destitute of a sac, or at least, a complete one, if the protruded viscus is [illegible] covered by peritoneum, as the vacuum; or if the hernia occur in consequence of a penetrating wound; it may also be considered as without a sac, if the sac has been burst by a blow or become entirely adherent to its contents.

The predisposing cause of hernia is a weakness of the [illegible] of the abdomen: some parts of which, as the inguinal & crural rings, are naturally weaker than the others; they may be still further weakened by disease, injury, or malformation. Hence anything tending to produce violent action of the abdominal muscles, & consequent compression of the viscera, may be an exciting cause, as lifting heavy weights, &c.

Hernia is divided into several varieties, according to the situation of the protruded viscus; as inguinal, which escapes through both abdominal rings; femoral, which

protrudes under Poupart's ligament; umbilical, most common in children soon after birth, 2. The femoral is the most severe, because of the more dense & unyielding nature of the parts which surround the neck of the sac.

The parts concerned in its formation may be described as follows; the external oblique muscle of the abdomen arises by fleshy digitations from the external surface of the eight inferior ribs, Descending, it spreads out into a broad aponeurosis, which is inserted into the outer lip of the crest of the ilium for one half its length, the anterior superior spinous process of the ilium, spine of the pubis, pectineal line, front of the pubis, linea alba. The lower border extending between the anterior superior spinous process of the ilium, & the spine of the pubis, is folded inward, forming Poupart's ligament; the insertion into the pectineal line is called Gimbernat's ligament. Under Poupart's ligament pass the femoral vessels. The fascia, which invests the abdomen & thigh, consists of two layers; these, at the groin, are separated by the superficial lymphatic glands; the superficial layer is continuous with the superficial fascia of the abdomen; while the deep layer, and

ed the fascia lata, is attached to Pouparts ligament, the crest of the ilium, sacrum, coccyx, tuberosity & ramus of the ischium, ramus & body of the pubis: extending into the thigh. It is attached to the linea aspera. At the upper extremity & inner side of the thigh, there is, ~~extending into~~ in this fascia, an oblique foramen, giving passage to the internal saphena vein. This fascia, in its course along the femoral vessels, is reflected over them, and together with the transversalis fascia, forms a sheath for them, called the crural canal. The fascia lata also sends in a process or fibrous layer, from its attachment at Pouparts ligament, and the spine of the pubis, which constitutes the outer boundary of the saphenous opening, to its attachment at the pectineal line, continuation with the psoas and iliacus muscles. This layer is also connected with the sheath of the femoral vessels, & being pierced by many small openings for lymphatic vessels, is termed cribriform fascia. The femoral artery in its passage through the sheath, is separated from the vein by a thin fibrous septum, the artery & vein occupying the outer two-thirds of the sheath. From the inner third the vein is separated by another thin fibrous septum, between which and

the inner wall of the sheath is an interval. The superior opening of this space is termed the femoral or crural ring. It is bounded in front by Pouparts ligament, behind by the os pubis, internally by Gimbernats ligament, & externally by the femoral vein. It is closed only by the peritoneum, & by a thin layer of cellular tissue, the septum crurale; hence it must necessarily be a weak point. The intestine passing through this ring, constitutes femoral hernia. It passes first downwards under Pouparts ligament, carrying before it the peritoneum, septum crurale; then forward through the saphenous opening in the fascia lata, carrying before it the fascia propria, & cribriform fascia; then curves upward over the falciform process, & lies on the anterior surface of Pouparts ligament.

This hernia may be distinguished from the inguinal, by the feeling of Pouparts ligament over the neck of the sac, & by its being external to the spinous process of the pubes, whereas inguinal hernia is the reverse.

It is liable to be confounded with psoas abscess by its situation, its dilatation when the patient coughs, & diminution when he lies down: it may

be distinguished by observing that it is more internal, & is not attended with symptoms of disease in the spine.

It resembles varix of the femoral vein in di
lating on coughing, & diminishing when the patient
lies down, but may be distinguished by making pres
sure under Poupart's ligament, when if it is varix, it
will disappear, while a hernia would not, under such cir
cumstances. Pubic & other tumors of the groin may be
distinguished by their general character & history, & by
their being unattended with abdominal disorder.

If the tumor contains only intestine, it
will be smooth, rounded, & elastic, & a gurgling noise
will be heard as it is returned into the abdomen: if om
entum it will be doughy, inelastic, & irregular: some
times it contains both, and in any case, the distinct
ion is difficult, & often impossible.

Femoral hernia, like all others, may be reducible, ir
reducible, or strangulated. The symptoms of reducible
hernia are, a soft compressible swelling in the groin, its
dilatation when the patient coughs, or exerts himself,
& its diminution or disappearance when he lies down, or
when properly directed pressure is made upon it.

When the protruded viscera cannot be returned into the abdomen, the hernia is said to be irreducible. This happens whenever they adhere to the sac, or to each other; whenever the sac contains omentum, or mesentery, & they become enlarged, or when that portion lying in the neck of the sac, is contracted, & so flexible as to yield under the pressure intended to return it, instead of returning before it. If the hernia be not reduced, the protruded viscus will be likely to resist the distension or upward movements of the stomach, & cause dragging pains in the abdomen, or attacks of vomiting; the faeces also may lodge there, & cause colic or constipation; the viscus is also constantly exposed to injury, & in danger of strangulation. Strangulation is its constriction in such a way as to prevent the return of the venous blood, or the progress of the contents of the intestine. The symptoms are flatulence, colicky pains, a sense of tightness across the belly, desire to go to stool, & inability to evacuate; succeeded by vomiting of the contents of the stomach, then of mucus & bile, & afterwards stercoraceous matters. If this state is not relieved, inflammation comes on. Tenderness begins in the neck of the

sac, diffuses itself over the tumor, over the abdomen, & both the swelling & pain increase. There is anxiety of the countenance, constant vomiting, the patient becomes restless or desponden t, the pulse small, hard, & wiry. Mortification commences in the constricted part, after a variable time. The skin becomes cold, the pulse very rapid & tremulous, the tumor dark-colored & emphysematous, & the patient soon dies. Whenever the surgeon finds a patient attacked with sudden & violent vomiting & colic, he should make it a rule to examen the ordinary seats of hernia, & make strict enquiry for tumors about the abdomen, for the patient may have been afflicted with hernia for a long time, & yet omit to mention it, from ignorance or false shame.

The indications are 1st to replace the protruded viscera, & 2nd to prevent their return. For the first, the taxis, or mechanical operation should be resorted to. The patient should lie down, having his shoulders raised, his thighs flexed & close together, so as to relax all the muscles of the abdomen as much as possible. The surgeon should then compress the tumor gently with both hands, and first draw it downwards from the anterior part of Poupart's

ligament; then endeavor with the points of his fingers, to push it downwards, backwards, & upwards, in the axis of the neck of the sac. This kneading & pressure may be continued for half an hour or more, if the tumor is not tender, but not so long if it is. When the intestine returns, a gurgling sound will be heard, & the tumor will be diminished in size. Sometimes the operation will succeed better if the muscles are not so much relaxed; if the common method fails, this plan may be tried, allowing the patient to lie with his thighs & legs stretched out. Too much force should not be employed, because it might drive sac & all into the abdomen, or between the layers of abdominal muscles.

Sometimes constitutional measures must be resorted to, to aid the reduction. If the patient is robust, & there is tenderness of the sac, or abdomen, & the hernia small, & recent occurrence, bleeding nearly to syncope, may be tried. The hot bath continued long enough to produce great relaxation, is sometimes useful, under similar circumstances, but caution is to be observed not to pursue these measures too vigorously upon delicate patients, as after these, they will not be likely to sustain the

a week of an operation. When pain & vomiting are violent, in acute cases of strangulation, a large dose of opium, or morphia may be given.

Cold is useful to reduce inflammation. It may be applied over the part by means of a bladder filled with pounded ice, or a freezing mixture. Great care should be taken not to continue it too long, for gangrene of the skin may be the consequence. Caution should also be observed in the use of hot applications after it, for the same reason.

Hydrocyanic acid is sometimes applied to the tumor, & suffered to evaporate, with benefit.

Where the patient is aged, & the hernia is large, & has been long irreducible, & the attack has been preceded & caused by constipation, purgatives & enemata are highly useful. Calomel & colocynth are the best purgatives, & should be given in large doses. For enemata, as much salt & water should be injected, as can be without pain or distention. When the patient is old, the hernia large & of long standing, these remedies may be persevered in for some time; but in acute cases in young people, as a general rule if the taxis, combined with opium, the warm bath,

& bleeding, should fail, it is best to lose no time in resorting to an operation.

The operation which is most commonly performed, consists in opening the sac, dividing the stricture, & returning the intestine. The skin may be divided by pinching it up into a fold, & running the knife through it with its back toward the sac; or by making one incision along Pouparts ligament, & another falling perpendicularly from its centre over the tumor: then turning the skin back divide the other layers by a simple longitudinal incision. They should be divided successively, taking up a small portion of each with the forceps, & holding the knife horizontally, make an incision sufficient to pass a director, & divide the layer by passing up a blunt-pointed bistoury, or hernia knife. The bluish transparency of the sac will show when it is reached; this should be divided in the same manner, & with the greatest care, because it seldom contains any serum or omentum, & is usually very tight round the bowel. The stricture will generally be found at the inner edge of the falciform process, by passing up the left forefinger. The bistoury should be passed up flat along the

finger, with the edge turned upward or a little inward
toward the spinous process of the pubes. The division must
be made only a line or two in length, for fear of wounding
the spermatic cord in the male or the round ligament
in the female. If this does not release the stricture, a few
fibres of Gimbernat's ligament must be divided, keeping
a watch for the obturatrix artery, which sometimes runs
around behind that ligament, is apt to be wounded.

After opening the sac, the intestine, especially
that portion of it which has been compressed by the stric-
ture, should be gently drawn down, & thoroughly exam-
ined. If it is merely dark colored from congestion, or
if it be roughened with lymph, or if it exhibit few
black patches of ecchymosis, it should be replaced bit
by bit, those parts which protruded last being return-
ed first. The wound may then be closed with one or
two sutures, & a firm compress placed upon it.

If the contents of the sac are united to it by firm, broad
adhesions, they should not be disturbed, but if the adhes-
ions are thin & slight, they may be divided, & the bowel
drawn.

If the intestine is covered with softened, green, or ashy

spots, it will be known to be mortified. The mortified part should be slit open, the stricture divided, & the patient left to recover with an artificial anus. This will be the safest plan also, when a large portion of intestine, which has been long irreducible in an elderly person, appears extremely dark & advanced toward mortification.

If the sac contain omentum, this should also be thoroughly examined. If it is gangrenous, or thickened & indurated, it will be liable, if returned, to excite dangerous irritation of the peritoneum. In this case, it may be cut off, all the vessels tied with fine silk ligatures, & the end returned into the abdomen, breaking up the adhesions, if there are any, about the neck of the sac.

When so much force has been employed in the taxis, that sac & all are forced between the abdominal muscles & the fascia transversalis, the symptoms of strangulation will continue, although the tumor disappears. The patient should be made to stand up & cough, so as to bring the hernia down again, when it should be operated on without delay. If this fails, a cautious incision should be made through the abdominal parietes over the suspected place of lodgment. If found, the

sac should be opened, & the stricture divided.

After the hernia has been reduced, a compress should be put on the site of the tumor, & secured with a bandage, so as to prevent any protrusion from sneezing, coughing, or any other accidental exertion. If the bowels do not act in six or eight hours, enemata may be administered, but purgatives given by the mouth, can hardly fail to be injurious, for as the intestine that was constricted, remains for some time inflamed, weakened, & incapable of propelling its contents, they will irritate it uselessly. After twelve hours, castor oil, or rhubarb & magnesia may be given. Tenderness, pain, & other symptoms of inflammation may be allayed by leeching, bleeding, calomel & opium & fomentations.

When the patient gets up again, a truss should be applied to fulfil the second indication of treatment, viz, the prevention of the return of the hernia. The surgeon should measure from the exact spot at which the protrusion commences, to an inch beyond the spine; this will give the requisite measurement of the truss. The pressure should fall against the hollow which is just inferior & external to the spinous process of the pubes.

The ireducible hernia should be supported by a truss with a hollow pad, or if it contains omentum, the pressure of a common pad may be borne. The pad should not press with so much force, or be so small as to cause pain, although at any rate, the patient may expect to find it uncomfortable for the first week. It should be worn all the daytime, & if the patient is willing to wear it at night, it will be advisable. If unwilling to endure it at night, it should be put on before he rises in the morning.

By the truss constantly worn, we may sometimes hope to effect a permanent cure, if the patient is below the age of puberty, or not much above it, & if the hernia has not existed very long. The herniary aperture, no longer subject to distension, may be closed, & the neck of the sac obliterated. However, femoral hernia is seldom cured radically.

Samuel B. Shepard.

I propose in this essay to treat of Inflammation; giving a short sketch of its symptoms as it ordinarily appears, + of some of the theories concerning its nature — of its causes — and of its treatment.

I do not expect — dropping the student and assuming the teacher — to present anything new on this topic; but only to make what as a candidate for professional honors. I am obliged to perform of service to myself as the exercise of a student; and the extent of my wishes will be reached — if in the trial to which I am to be put — to test my faithfulness as a student, this does not appear as a witness against me.

The subject is one of much importance to the Medical Man — because of its very frequent occurrence in his practice; and the resulting necessity of his being

familiar with all its manifestations and with the means of successfully coping with it. —— Confining my remarks principally to the acute form of Inflammation, I shall speak —

1st - Of the Symptoms.

These are divided into 1st Local - such as manifest themselves at the inflamed part. - 2d Constitutional — such as manifest themselves in the system at large — And 1st Of Local Symptoms

These are — pain. heat - redness swelling - and disordered function of the part. - These Symptoms each demand more particular attention —

1st - Of the Pain — This varies in character - according to the seat and intensity of the disease. In the skin it is burning — in the cellular tissue it is throbbing. in the serous membranes it is sharp and lancinating - in the mucous tissues - it is more dull and

continuous. It is also affected by the relative position of the diseased tissue to other parts: the more deeply seated and firmly bound down the inflamed part, the more severe the pain — other things being equal. Thus the intensity of the pain, in the common "felon" depends chiefly upon its position beneath the firm membranous fascia of the part.

Pain in an inflamed part is attributed to the pressure made upon the nerves by the dilated vessels, and by the effusion into the inflamed tissue.

That this is partly true, is evinced by the increase of pain following the application of pressure to the part. That it is not the sole cause, may be inferred from the fact, that healthy parts bear a much greater degree of pressure: that in anasarca the pressure caused by the effused fluid does not create a corresponding degree of pain.

We conclude then, that there is, in

Inflammation. a morbid sensibility of the part affected. — The proper pain of inflammation is attended with a degree of tenderness under pressure, which serves to distinguish the pain of inflammation from that of other affections. it is also usually slight at first — and gradually increases in intensity. till the height of inflammatory action is reached. when it gradually becomes less severe. in the obtaining inflammation it assumes a throbbing character with the advancing ulceration. it ceases entirely and rather suddenly upon the production of gangrene. —

2d — Of the Heat — This is persistent & perceptible both by the patient and the attendants & and is ascribable to the increased influx of blood to the part, & to the more rapid change of the tissues. The heat in an inflamed part may rise from 2° to 8° above its natural standard of 98°. though it seldom or never

presents to an attendant observer that increase of temperature which the sensations of the patient might lead him to suppose. Here the morbid sensibility before alluded to, makes the sufferer keenly alive to the slight ~~variation~~ increase of heat which the part possesses.

3d – Of the Redness. —— This depends on the presence of an increased quantity of bright red blood in the capillaries, ~~and~~ consequent on stagnation or sluggish action in them. The tint of the part varies with the intensity of action. Thus in Acute Inflammation we have the bright scarlet hue: while Chronic Inflammation presents it of a darker hue. The central point of Inflammation being that where morbid action is most intense, presents the deepest color, and from it it is diffused in all directions till lost in the contiguous parts. Like the heat of Inflammation – the color – is also persistent, though it may be made to disappear transiently under pressure.

4th. Of the Swelling — There is effusion at first occasioned by the accumulation of blood in the part. This is follows as the inflammation process goes on, by the effusion of serum & fibrin — on which the swelling mainly depends: the tumor commencing and keeping pace with the progress of the disease till the period of pus-ient formation. The tumor is circumscribed shining, and somewhat firm in feeling; but yields more pressure, leaving a permanent indentation or "pit"

5th. Of the Functional Disorder — This disorder — in the first stage of the process — is generally morbid decrease in the functional activity of the part: this gradually passes into entire cessation of the function, and this state continues till the invest of the inflammatory process. When the normal activity of the part is slowly [illegible] An exception to this rule may be taken with regard to the secretory vessels of the part. These exhibit

in the first stage of inflammation, a perverted activity - rather than diminution - of function: but as the inflammation advances this increase, is in its turn succeeded by a diminution or cessation. This increase depend, in part, no doubt - upon the dilution of the secretion by serum. There is also - perversion of the products of secretion.

The symptoms enumerated above, taken collectively - mark the existence of inflammation in the part when they occur; though the absence of any one of them, is no certain indication of the absence of inflammation.

2d. Of the Constitutional Symptoms

These are, generally, disorder of all the functions of the system, to a greater or less degree; and proportionate to the local disturbance. Considering these, one at a time, we find 1st. Disordered innervation marked by dull pains in the back & limbs. - indisposition and inability for exertion.

- anxiety expressed in the countenance; sensibility of the special senses of vision & hearing with blunting of the other senses; and later in the disease. or under a more intense action of the cause. Delirium or Coma.

2d. Circulation. Of this function we have disorder marked by increased frequency, fullness and hardness of the pulse; or sometimes as in abdominal inflammations smallness. rather than fullness of pulse = flushed countenance - and heat of ~~System~~ body increased. The blood is somewhat altered in its character: chiefly by the increased proportion of fibrin it contains. And this is made apparent by the buffy Coat which forms on the surface of blood, drawn during the progress of inflammation.

3d. Respiration — This is quickened and there is a sense of oppression in the chest. — 4th. Digestion — There is thirst. loss of appetite - nausea. vomiting and constipation. The mouth & fauces are

dry: the tongue coated: with its edges and tip red and dry: very considerable quantity of food taken into the stomach remains undigested and becomes a source of irritation. — 5th. Secretion — The secretions generally are materially diminished or changed in character. The skin is dry and hot: the urine scanty and high colored: the bowels constipated: the mouth dry and sticky. — 6th. Nutrition — This function is held in abeyance. There is emaciation and loss of muscular strength consequent on the unrepaired wasting of the tissues — if this function be not speedily restored to its normal state. —

These symptoms mark the Constitutional affection and their intensity is correspondent to the extent and intensity of the local disease — As the Inflammation subsides these effects also subside, and health is speedily restored: or increasing or in unity with the increase of Inflammatory action

may terminate fatally, or reduce the patient to such a state as is recovered from only through a long and tedious convalescence. If they are to give place to health there will be a gradual approximation of each function to its normal state. There is a marked reduction of the fullness and frequency of the pulse; respiration is less laborious; there is great increase of the secretions - especially the urinary & Cutaneous. The appetite and strength return gradually and the patient more or less speedily attains to a state of health. ———————

——— There are certain "Events of Inflammation" as Watson styles them - which it may be proper to mention here.

1st Resolution - when there is a radical return to a state of health, without the formation of any abnormal product - upon the subsidence of the inflammatory action.

2d. Effusion of Serum - producing an edematous condition of the part. if

in the interior of the structure:— 3d— Effusion of Lymph in the interstices of tissues. or upon the surface of membranes: producing in the one case - permanent swelling & induration of the part — in the other. false membranes:—— 4th— Suppuration; or the formation of pus:—— 5th— Ulceration; or the removal of the inflamed part by the molecular disintegration & discharge of its tissues:—— & 6th— Mortification — or the death of a part collectively ——————————

Of the theories of Inflammation — very many have been broached and each in its turn has been controverted: and the point is, I apprehend - still undecided —— Previous to the discovery of the circulation - by Harvey. pathologists attributed the production of Inflammation — to the flow of the humors to a part.. Boerhaave thought the difficulty lay in the extreme viscidity of the blood, in part — in its passage into vessels not designed for it

and in part to an acrimony of the fluids.

Cullen attributes it to spasm of the extreme arteries: Hunter - to active distension or expansion of the vessels: Wilson Philip attributes it to passive distension of the capillaries - from their weakened state. Watson objects to all of these theories and without propounding another, thinks the nerves are more implicated primarily than the vessels. Dr Carpenter assigns as the proximate cause - "an error of nutrition manifesting itself - in a deficient formative activity, and in an increased tendency to degeneration". "Whatever the proximate cause may be - all authors are agreed upon the treatment proper for inflammation, though differing in their opinions of the "modus operandi" of the treatment. Cullen thought Antiphlogistic treatment relieved spasm of the vessels. Hunter thought it effected relief from the distension of the capillaries: as does Wilson Philip. and to effect these various ends - all employ the

same treatment: so that practically one theory is no better than another.—

——. Of the Causes of Inflammation.

These may be divided into. Exciting and Predisposing Causes.— The Exciting Causes are such as more directly induce the morbid state. and of them we may mention

1— Mechanical violence. producing laceration or contusion of the part:——

2— The action of Chemical agents. which destroy or impair the vitality of the tissues and thus excite inflammation in the adjacent parts:——

3— The presence of foreign bodies. as of a ball. in gunshot wounds. spiculae of bone. in cases of fracture: and——

4— Morbid growths or deposits - as of tubercle in the lungs:——

5— The application of cold and moisture, or of extreme cold as the wetting of the feet. or the wearing of damp clothing:——

6— The retention or suppression of accustomed

secretions — as the retention or suppression of urine — producing Cystitis or Nephritis: —

7— Undue exercise of an organ: as of the eye in a glaring light: — — — In short any thing which produces continued or excessive irritation of a part. or that lowers its vitality may operate as an exciting cause of Inflammation in a System predisposed to it.

Among the Predisposing Causes we may name — Morbid excitability of a part: — plethoric state of System: inducing overaction in some organ: — a State of Debility — impairing the power of resistance to exciting causes: — The existence of Inflammatory action in Contiguous parts — or in those intimately connected in function: — Habits of Intemperance and Exposure to the circumstances incident to extreme poverty: and in general — Whatever impairs the vigor and general health — may operate as predisposing Causes of Inflammation. —

There are certain circumstances affecting the duration & character of the inflammatory process. Among these are:— The structure of the part: the intensity of the inflammation being in direct. — and the duration in inverse ratio to the vascularity or degree of organization: Relative situation to the center of circulation: the general rule being that proximity to the center increases the intensity of the inflammation: — Previous condition. of system must modify the character of disease: — Age & sex also modify the character: the extremely aged and females being less liable to acute inflammation: — — Intemperate habits stamp an asthenic character upon the inflammatory process: — Atmospheric states also affect it — as is apparent from the difference in inflammation occurring in the crowded tenements of the city and in the pure air of the country. — As a general rule it may be said, that inflammation occurring in previously healthy systems.

under circumstances, generally conducive to health is of a more ethenic character than in opposite circumstances.

C. The Treatment. The object of treatment in Inflammation is to bring about resolution. ~~or if Suppuration be inevitable to limit its extent~~. To effect this we have recourse both to Local & Constitutional treatment. In addition to what may be properly considered under these two heads, there are other circumstances of treatment not strictly curative: but of such a nature as materially to aid the action of curative agents. These I shall briefly enumerate in this place.

1st: Removal of the exciting cause: whether it be a foreign body: a chemical agent: a retained secretion: or whatever it may be

2d: Elevation of the inflamed part, so as to relieve it from the operation of the law of gravitation: 3d: Rest, from either active or passive motion of the inflamed part: enforced and made absolute - if need be - by mechan-

ical appliances; 4th. Freedom from all sources of irritation, of whatever kind.

Of the Local Treatment. ——— This has for its object the allaying of the heat and pain, and morbid sensibility of the part, as well as the exerting of a direct counteraction to the inflammatory action. Among the means used are — 1st Cold + moisture — or cold — to the part, by cloths wet in water or by bags of pounded ice. Alkaline solutions. Alcohol in extreme dilution — and the Saturnine solutions, are useful in many cases. When there are abrasions, however, the simple cold water application is preferable

The Saturnine solutions seem to exert a twofold influence, both by their coolness, and by the direct sedative power of the lead

— 2nd Heat and moisture by means of cataplasms and fomentations, will sometimes be more grateful to the patient than the applications mentioned above; in which case it is to be preferred. The efficiency of these means

may sometimes be enhanced by the addition of some of the narcotic infusions: E.g. Belladonna: Stramonium: Opium: Tobacco: —

— 3d Local Bleeding by leeches - cups - or incisions - This operates mechanically by relieving the distended vessels of the inflamed part: as a Sedative - by the abstraction of blood: and as a Counter-irritant, if applied to contiguous parts. In choosing which of these means to employ - we may say - as a general rule: that when it is desired to take blood directly from the inflamed part, - or from parts continuous with it. Leeches are to be preferred. If the blood is to be drawn from parts merely contiguous cups may be applied: and they are to be preferred when it is desirable to abstract blood from the vicinity of superficial [illegible]*

4th. Nitrate of silver - applied lightly in the early stages of Cutaneous inflammation operates favorably in mitigating inflammatory symptoms. The "modus operandi" - is not as

* Incisions in Deep, seated inflammation as "Felon"

clear as the fact.— 5th— Counter-irritation is an efficient means of treating inflammation— after all acute action has subsided. It may be effected by Blisters. Setons. issues or by pustulation with Croton oil or Tart. Ant. These set up a certain degree of irritation or inflammation in the part to which they are applied. and seem to call away the disease from its original seat. to one where it may be less dangerous & more manageable.——— These are the principal means employed to reduce the local disorder: and when skilfully used. as regards both time & manner of their application. will be found efficient for the purpose.———

The general disturbance of the system attendant on Acute Inflammation. also demand. remedial treatment. This is commonly called Antiphlogistic treatment & and of it I now briefly speak—

It consists of such means. as allay the force & frequency of the hearts action & tend to

restore the abolished secretory function, and allay nervous irritability and pain.

Persons know these remedies. Rigid & general Bloodletting: carried to a point sufficient to insure some reduction of the heart's action: but not far enough to endanger excessive reaction. This ~~point~~ is generally reached when a slight figure of faintness results from the flow of blood: if the pulse do not previously indicate the attainment of the desired result: The cases in which this remedy is specially indicated are those in which there is great pain in the head: a plethoric state of the system: when some one of the vital organs is involved in the inflammation: and when the constitutional symptoms generally are very urgent: when there is a buffy state of the blood, when tested.

Emetics & Cathartics operate favorably in inflammation, when not acting on the stomach or intestines. Their remedial effects are obtained by their removing irritants from the

alimentary Canal: by producing determination to the part, and thus acting as Revulsives; and by increasing Secretion, and thus acting as Depletants. Of Emetics applicable in Inflammation, Tartarized Antimony is the best, provided there be a moderately robust system. In weaker Constitutions, Ipecac. is preferable. The best antiphlogistic effect of both these remedies are obtained from its exhibition in less than emetic doses; in such doses as shall maintain a slight degree of nausea. Under this treatment the Secretions generally are increased; and in the use of the Antimony we have superadded its directly sedative effect upon the circulation. The same in less degree is true of the Ipecac, and the one may be substituted for the other, according to the tolerance of either by the stomach. — Of Cathartics Mercury is quite frequently used, combining as it does with its Cathartic effect the alterative one, and a sedative one.

though for the latter effects administered in non-cathartic doses. It is also exhibited in inflammation. to prevent the effusion of fibrin - when once effusion would be attended with dangerous results. — The Saline Cathartics are also employed for their evacuant action. —— Opium either alone or in combination - is a valuable remedy in inflammation. from its power of controlling nervous irritation: an assuaging pain & restlessness: & procuring sleep: and it should be administered with a view to these effects Other narcotic sedatives - as the Hyoscyamus & Aconite - may be alternated with it when from any cause it is not desirable to continue its use. —— Diuretics are applicable in inflammation. not of the urinary organs. — Diaphoretics may be employed with advantage when the cutaneous secretion is stopped [illegible]

Attention to Diet is important. in the Constitutional treatment of inflammation.

it should be light. but slightly nutritious and non stimulating. ——

——. I have now gone over the principal points of interest connected with Acute Inflammation, touching upon them as briefly as possible: aiming simply to present to you a digest of what I have read & of what I have been taught on the subject - without an attempt at originality - either in idea or arrangement. —

W. Camp

New Haven.

New Haven. Dec. 28. 1855

Comm

Gentlemen

That branch of the Science of Medicine which I have chosen as the Theme of my dissertation on this occasion is-

Medical Jurisprudence

Definition. Mr Chitty defines Medical-Jurisprudence in its most extensive signification to be, the science by which Anatomy - Physiology - Pathology and Surgery and their collateral branches are made subservient to the preservation of Public Health, and the protection of the person from injury, and to the formation, construction, Elucidation and administration of the laws relative to the same subjects; and it therefore resolves itself into two great divisions. viz. Forensic Medicine, comprehending the evidence and opinions necessary to be delivered in courts of justice, relating to criminal and other matters, &c

of

be there determined; and secondly into what has been termed Medical Police embracing the consideration of the Policy and efficiency of legal enactments and regulations for the purpose of preserving the general health and physical welfare of the community.

I shall confine my [illegible] to the first division viz. Forensic Medicine. This department of our science I think receives too little attention from members of the profession; its importance does not seem to be fairly considered.

At the present day when the testimony of the Physician is so often required in courts of justice, it is absolutely necessary that he should have some general ideas on the subject. I shall briefly enumerate a few rules that may serve as a guide in medico-legal proceedings.

1st Never give an opinion to council before trial, because he takes a one-sided view of the subject and does not give a fair statement, consequently there is danger of self-commitment.

It is often the case that a lawyer endeavors to

get the opinion of the physician interested in the case previous to his going into court. He seems to be well aware of the great advantage that such information would be to himself, provided he had it, as it would not only give him sufficient time to prepare his arguments but if he had it in writing, it would give him an opportunity to make some such alterations that would be more advantageous to himself. The lawyer has no right to these documents as they do not belong to him.

2nd Never go into court until authorities on the point at issue have been consulted. Do not state differences from generally admitted good authors with too much confidence.

A physician in court is frequently asked, what such and such authors say in regard to certain subjects. If he has consulted these authors well and good - if not, he is very apt to be caught in an unpleasant situation, the first time he is apt to rely too much on himself, he may say 'Oh, I don't know or I don't care what authors do say about them, I never took the

trouble to consult their works, I consider my own opinion as good as anybody's &c &c. Now no matter how good his judgement may be - no matter how much his own opinion is worth, I think it may be set down as a certain fact, that such a fellow's testimony will not be considered as valuable by the court as he himself estimates it. Sanned men in whatever position they may be placed are not apt to sit and near book-makers (as a class) reviled in such a manner, without taking some measure to stop the reviler's impudence. If however the physician differs from the books - if his opinion is the result of experiment which has shown that the books were faulty - or if he sees no reason why certain statements should be laid down - or the contrary has reasons why they should not be considered proper, then of course he is at liberty to state his own opinion in preference to those of different authors.

3d When an opinion is formed stick to it, never get excited.

It is an excellent plan to keep from getting excited

when possible, and particularly not to allow oneself to get angry; as in the practice of his profession, the physician who is self-possessed is capable of accomplishing the effect he [illegible] desires — so it is before magistrates, he who is calm and collected, is capable of making a greater impression upon his auditors.

The legal gentlemen understand this, and for this reason they endeavor to confuse those who they are examining [illegible] to throw them off their guard, and consequently to make their evidence of no worth. If the physician therefore gets angry, excited, or confused, he will be at once attacked, till he is so twisted, and pulled, and wounded, that he [illegible] a correct idea of his own existence.

4th Refrain as much as possible from technicalities. A medical man is generally supposed to be acquainted with the technical names of various parts of the body &c. It is by no means a mark of great learning to be able to use a few of what in common life are termed "big words". These might do very well for a school-boy who has just [illegible] to study of Physiology — But they dont sound well in

language which is directed to persons who you are sure are not acquainted with medical terms. It is an undeniable fact that medical men are prone to make use of technical terms — and these terms are as useful on certain occasions as they are inapplicable on others — yet before the bar of justice language of this kind is out of place.

The remarks of Mr Bell in speaking of certain writers on Anatomy, might pertinently apply to certain doctors. This gentleman says that there are authors who avoid plainness as if it were meanness; who are studious of hard words as if they constituted the perfection of their science; "it is their trade it is their mystery to write obscurely, and full sorely does the student feel it." Whether medical students, as a body, object to this "scholastic jargon" as Mr Bell in another place calls it I am unable to state, but I think I am safe in saying that there would be some "feeling" on the part of any twelve jurymen. In case it is necessary to use these terms they should be parenthesized.

5th Never expose the secrets of patients.

When a person wishes to consult the physician in regard to certain diseases of a private nature, it is very natural that he should select some one in whom he can trust, this he generally does. But if the physician betrays this confidence, and exposes his patients he not only does unfairly – but shows himself capable of great injustice. As an illustration of what a physician should do, I will state a case that occured in one of the Courts of the State of New York. A man wished to get a divorce from his wife on the ground that she was unchaste. [illegible] who had attended the woman was summoned to the witness stand to testify whether he had treated the woman for the disease she was charged of laboring under, this he refused to do, the council on the part of the husband urged him, but to no account he absolutely refused to say any thing about it. The council then appealed to the court. The judge decided that he must answer, stating that if he did not he should commit him for contempt. Just as your Honor deems best

answered the witness. I still refuse. The judge carried out his threat and the medical man took lodgings in prison. I think that this [illegible] did right, for he acted in accordance with his conscientious duty rather than his own personal welfare.

6th Take notes and be systematic in their arrangement.

The practitioner should take notes when he is investigating any case of a medico-legal nature. If the case be one of suspected poisoning for instance, it is above all things necessary that he should know to what points he ought to give his attention. It is very proper that every effort should be made to save the life of the patient, when the individual is living, but while engaged in one duty it is also in his power to perform another, supposing the case to be one of suspected criminal poisoning — viz — to note down any circumstances that may tend to detect the perpetrator of the crime. There is no person so well fitted for this as the medical man, but it unfortunately happens, that many facts im-

portant as evidence are often overlooked. He would be sadly unmindful of his duty as a member of society if he did not aid the course of justice by extending his scientific knowledge to the detection of crime. It is much to the credit of the medical profession that the crime of murder, a crime of such that no caution or precaution can protect an individual is so often brought to light by the announcement of suspicious facts of a medical nature to coroners and magistrates.

The following are some of the principle points, that demand the attention of the medical jurist in all cases of suspected poisoning. With respects to symptoms he is to note down the time of their occurrence, their nature, the exact period at which they are observed after food or medicine had been taken, whether the person was laboring under any disease previous to his taking the suspected poison. Whether any particular kind of food or medicine produced the symptoms, whether the patient had vomited &c. Note down in their own words all explanation voluntarily made by persons present or who are suspected to be concerned

in the supposed poisoning whether more than one partook of the food. In case of death note down the exact time of death, observe the attitude and position of the body, notice any bottles, packages, weapons, or spilled liquids lying around.

Of the Inspection of the Body

Note the appearances of the body, the state of the countenance, discoloration of dress, marks of blood &c. If found dead when the deceased was last seen living, note all circumstances leading to a suspicion of murder or suicide. Notice the state of the viscera particularly of the abdomen. The state of the rectum, for if hardened - as were present, it would indicate that purging had not taken place. The state of the genital organs particularly the vagina of the female. Note down wounds of any kind their situation extent &c. These notes should be systematic in their arrangement, in giving an account of the state of one viscus, then of another, and again flying back to the first, but there should be order in all things. Particulars - The noted fluids taken, are those that should be used in the

court room,

Of the identity of Substances.

It is necessary that the physician should be able to prove the identity of all vomited matters - and in fact all other substances which he has examined. If he cannot do this, it is in the power of the council to raise doubts in the minds of the jury, whether the poisonous substances might not have been accidentally present in the vessels used - a remote presumption it is true, but it is upon objections of this kind that acquittals follow in spite of the strongest presumptions of guilt. Mr Taylor states a case in which the contents of a stomach were once rejected in court, because they were hastily thrown into a glass jar borrowed from a grocery shop; as it could not be proved that the jar was free from poison in which the grocer dealt.

Therefore the vomited matters (particularly those first ejected) are to be preserved, their colour, odour, acid or alkaline reaction noted, as well as the quantity. If none be procurable - and the vomiting have taken place on the patients clothes

a portion of the clothes should be carefully removed and reserved for analysis; if the person has vomited on a dead floor, which has been cleaned, that is the stuff merely wiped up, the floor may be scraped and the shavings collected, these of course would not furnish a very great quantity of any poison be what it may, yet to such a perfected state has the science of Chemistry reached that the minutest quantity can be easily detected. take for instance that familiar article Arsenic - by the tests of Marshand Reinsch a mere trace can be so clearly shown as to leave no doubt of its existence, And these are many other poisons, that can be demonstrated equally well.

The vomited matters should be put in a plain glass vessel - I say a clean vessel - don't trust to what people say in regard to the jar being clean; it is [illegible] of them you borrow the jar - you know to be an exceedingly neat woman, it would be doing her a great injustice to consider her crockery ware as in any other condition - yet - when the life of an individual is at stake "extra" precautions are necessary, The physician should himself

rinse whatever glasses he may wish to use in pure that is distilled water, ~~etc~~, this being done he must put the jar with its contents, in a place where he may be sure it is safe. It should be put in a place where it can be [illegible] locked up, no one but himself possessing a key to that lock. These simple rules being followed he is able to swear to the identity of any thing connected with his part of the proceedings.

Edward Bulkley Jr

Injuries of the Head.

Injuries of the Head are to be classed among the most difficult of diagnosis and treatment of all the affections which come under the notice of the modern surgeon. The truth of this position will be rendered obvious if we consider, first, that separated from the external world only by a thin plate of bone and a light covering of soft parts is the Brain, the great Centre of all intelligence and the source of all voluntary action; the organ which by its superior and complicated delicacy of organization goes far towards increasing the distance between the man and the brute. If we consider also the exposed condition in which this organ is situated, at the top of the whole physical structure, open upon every side to violence, suspended upon a pivot around which rotation is free in all directions, by this connection united to the Spinal Cord from which separation is death, we shall be led to wonder that injuries upon

this part do not happen even more frequently than they do and that they are so seldom fatal in termination.

True, the arched structure of the Cranium and the freedom of motion of the head tend greatly to diminish both the severity of and the liability to accidents of this kind yet when we remember the wonderful delicacy of mechanism by which the Optic nerve receives the impressions of light, or the auditory the vibrations of sound, we are still amazed that their functions are so rarely interfered with by those causes which come under surgical observation.

A second set of causes, which operate to embarrass us and complicate the solution of problems presented in this field of Science, is the occurrence of the same symptoms in totally different and opposite conditions of the brain and the extreme antagonism of symptoms occurring in cases of human view the same.

To the different ranges of susceptibility to impressions also, varying widely in different Constitutions as well as to the apparently dismal and frightful appearance of the patient, the alarm of friends, the hurry to have something done at once when to wait is all

we can do, and on this account the risk of incurring Censure for want of action, are to be attributed many of the difficulties which attend the Surgeon in treating this Class of Injuries. In all the reings of his practice there is perhaps no occasion which demands on the part of the Professional man more perfect Coolness and self-possession combined with skill and experimental Knowledge as those Cases which we are about to Consider.

The different Cases requiring treatment of greater or less severity may be conveniently divided into the following Classes; viz

First; Injury to the Soft parts about the Skull.
Second; " to the Skull itself.
Third; Injury to the membranes within and to the Substance of the Brain.

Of the Injuries to the Soft Parts, there may be

First; Simple contusion; It may occur upon any part of the head and from any kind of moderate violence; if the Pericranium be uninjured the only result will be a small swelling which yield to the application of Cold and mixture or possibly may require the application

of one or two Inches; If the violence be so great, however, that the Periosteum is injured there will frequently appear a bump, a hard tumor with edges so well defined as to endanger the mistake of fracture in diagnosis; it may be distinguished however by the absence of those symptoms of fracture presently to be specified.

If the tumor be small the treatment consists in cold applications till the local Inflammation is subdued and subsequently stimulating lotions to promote the absorption of its contents; If the tumor be large it may be opened by the Knife, and, the matter being discharged, the parts should be brought carefully in apposition and union by the first intention be expected. For fear of inducing a more widespread inflammation this method should be avoided till milder measures have proved unsuccessful.

Contusion with Lacuation of the soft parts upon the surface of the Cranium is frequently attended by more serious and sometimes with fatal results. In a healthy and vigorous constitution, the cleansing of the wound, removing carefully all foreign substances

bringing togethr the lips and retaining by adhesive straps with subsiquent Combating of the inflammation by Antiphlogistic treatment will suffice to remedy the injury. If an Artery be wounded, hemorrhage may be checked by Cold or the astringents or the redhot iron but ligatures should be avoided except as a last resort.

In Constitutions unfurbished by disease or broken down by long-continued use of alcoholic liquors inflammation of the Erythmatic sort is liable to ensue; the usual symptoms of Erysipelas occur; the parts become flabby and loose; a puffy or boggy infiltration of a dirty fluid occurs in the tissues spreading rapidly over the scalp and appearing on other portions of the body; all the symptoms in short of Traumatic Erysipelas follow requiring the appropriate treatment of that disease and in the majority of Cases the termination will be fatal.

The Second Class of Injuries of the head Comprises those Cases in which the Cranium is Cut, Contused, or fractured First, The Bone may be Cut through by a sharp instrument. If the internal parts be uninjured and no evidence exist that Spiculae of Bone are driven in upon the Brain

the usual treatment for lacerated wounds, with absolute rest will bring about Union by the first intention.
If however Pus should be secreted, producing symptoms of Compression, it should be evacuated by an opening through the lips of the wound followed by attention to the diet and rest; and in all cases when symptoms of Compression, once relieved, return again after an interval of hours, the secretion and retention of Pus may be suspected. If in Case of a cleft of the Skull there be evidence that spiculae of bone have been forced upon or through the Dura mater they should be carefully removed; the evidence of this fact may be found in the absence of a portion of the bone from the wound and the supervention of symptoms of Compression of the Brain.

Again; Contusion of the Bone may result, first, in the rupture of those vessels which supply it with nutriment and in Consequent death of the Bone; the disease may then cease and the dead portion be thrown off by sloughing or be separated by the Surgeon; or Pus may be effused between the bone and dura mater, in which case great Constitutional disturbance

will be evinced; there will be nausea and vomiting with restlessness, the pulse will be hard and tense but frequently not much accelerated; if the affection should not yield to proper treatment it progresses to shivering cold sweats and convulsions, the pulse increasing in frequency and diminishing in force till the comatose condition comes on and the patient sinks.

The treatment here appropriate will be the vigorous antiphlogistic; immediately upon the appearance of symptoms of purulent effusion to the brain and evacuate the pus if its position can be ascertained, and it may be advisable to operate even in doubt of its situation as it affords the only chance of saving the patients life; sometimes upon reaching the dura mater it rises suddenly into the cavity formed in the bone and fills it not in consequence of the normal pressure of the brain upon its walls or of the action of the heart but from pressure of a fluid within; in these cases the only possible hope, a faint one remains, in puncturing the dura mater that the effused pus may expude and this course should be followed by appropriate dressing and treatment.

If the operation should be deemed advisable, the friends of the patient should be informed of the circumstances and the doubtful, probable result in order that subsequent blame may not attach to the surgeon for an operation which is only ~~unfortunate~~ unsuccessful. The autopsy frequently reveals extensive inflammation of the dura mater, purulent effusion external to and between the membranes and sometimes under the pia mater; the dura mater is separated from its connection with the cranium and the bone is dead.

Besides cuts & contusions there may be also Fracture of the Cranium; it may be either of the External Tabel or of both the inner and outer.

If only the outer table be fractured or if both be fractured without displacement of the bone no serious results need be apprehended; the symptoms of Concussion having passed off, a cathartic may be exhibited, the patient kept at rest, local inflammation counteracted by appropriate remedies and recovery will frequently take place without an unpleasant symptom.

Fracture of the Cranium with depression of some portion of bone is always a serious injury, the result

of Considerable violence, demands immediate attention and is frequently attended with severe and often fatal results. If summoned immediately after the Accident which inflicted the violence the Surgeon finds the patient suffering from a train of effects known as the Symptoms of Concussion of the Brain; they may also appear when violence has been applied in such a way as to produce no lesion of either the skull or the soft parts surrounding it; they are not the effect of pressure but are the direct result of the jar upon the Brain; they may be said to constitute upon the great nervous centre a shock, the influence of which is felt in all the parts reached by the nerves of voluntary motion and sensation. These functions are temporarily suspended, the individual falls helpless and unconscious; the blood retreats from the extremities towards the Centre of Circulation, the limbs become Cold, the pulse small, respiration more subdued than natural, and the person presents the general appearance of one in a profound sleep; the pupil of the eye is usually Contracted.

From this Condition in the most severe Cases the patient sinks into Confirmed Coma, the action of the

becomes more feeble and frequent, the respiration weaker and he dies without reaction; More often, however, he gradually arouses to partial or complete sensibility with stuttering, vomiting, and some remaining dizziness. This set of symptoms many of Cases supervene as a result of any of the injuries whose local effects have been previously described provided the violence is sufficient. For remedying this state the indications are to promote action in the extremities which may be done by warm applications and fomentations, thus equalizing the circulation and diminishing the force of the hearts action upon the suffering organ. In cases where there was a plethoric habit and instead of the livid lips, the pale skin and cold extremities with natural or infrequent and feeble pulse, we have, as in some cases, the flushed face and throbbing arteries, depletion might be called for but should be practiced with the greatest caution.

Immediately following this reaction or sometimes without any reaction, if the brain is suffering from depression of the bone, it will be ushered by another train of symptoms which we recognize as symptoms of

Compression of the Brain. They are the same whether resulting from the pressure of fragments of bone or from that of Extravasated lymph, differing only in the time of their appearance; the latter will not usually occur as Early as the former. These symptoms resemble those of Concussion but unlike them do not ensue immediately after the injury and do not subside until the exciting Cause is removed.

In Compression we more often find the pupil of the eye dilated; the breathing is loud and stertorous; the air is frequently forced through the Corners of the mouth, the integuments of the face being without the Control of the will: there is usually no vomiting when Compression has obtained through Control of the system; there is, as in Concussion, a total loss of voluntary motion and Sensation; there may be so much susceptibility to external impressions as to allow of reflex action in the excito-motory system of nerves; and the functions controlled by the spinal Cord and by part of the sympathetic system of nerves will be properly discharged; All voluntary motion is suspended. The Pulse is hard, tense, and

impulse; generally frequent and often intermitting;
If the patient has been suffering for any length of time
the bowels will be obstinately constipated, enthusiasm
failing to produce intestinal action.

This state may be mistaken for that of Concussion,
of inebriation or of Apoplexy; the distinctions between
Concussion and Compression have been pointed out;
Inebriation has been so developed in some instances
as much to resemble compression; a careful man,
however, who should enquire the antecedents, would
have little difficulty in making an accurate
diagnosis. Apoplexy also in some forms imitates
Compression; but also the preceding symptoms, the
absence of known violence, the Constitutional
Characteristics of the individual would afford
much assistance in ascertaining definitely the
Character of the disease.

For Compression of the Brain there is but
one appropriate method of treatment; the depressed
portion of bone should be raised either with the
Elevator or the Trephine; loose portions of bone lying
in the wound should be removed as well as all

foreign bodies, the lips of the wound should be brought and retained in contact by adhesive straps. Sutures should be avoided on account of their liability to promote or increase inflammation; the patient should be put at perfect rest, low diet enjoined, a soluble state of the bowels maintained and a moderate antiphlogistic generally be applied; if one corner of the wound has been suffered to remain open for the discharge of pus or serum the wound need not be dressed for ten or twelve days; then a careful dressing so as not to disturb surrounding parts should be advised and the patient will frequently recover without an untoward symptom; this is especially true of Children in whom wounds of this kind are most liable to occur.

Inflammation of the Dura Mater, known, occasionally supervenes, pus is formed which must have free discharge, pain must be rendered tolerable by a careful use of Morphine, Calomel must be administered, counter irritants applied about the neck and antiphlogistic measures be adopted so far as they can without disturbing the

patient; for in all these Cases Perfect rest is the first remedial measure. If the pulse be hard and full blood may be taken from the arm to a moderate extent; Leeches or a blister to the neck, Antimony in small doses if the patient is strong and plethoric and a few grains of Dov Powders every three or four hours to promote sweat. In very many Cases however of subsequent inflammation the patient will sink in spite of all medication.

In the star fracture with depression trephining is always requisite; the time of the operation should be after the symptoms of Concussion have subsided as soon as possible, unless indeed the patient has already waited too long and is manifestly sinking; there may be a time before death when a judicious surgeon should refuse to operate, or else if the friends insist, should proceed, informing them that he had little hope of saving life.

The Brain frequently recieves injury from Splinters of bone thrust downwards by a blow, the effect of which is not felt at the time; years afterward the person may suffer from fits apparently Apoplectic which are really the result of a foreign body in

that organ. Trephining is applicable here yet the result is extremely variable; So long as the attacks are so infrequent or so brief as to be no great inconvenience an operation is hardly to be advised. If however the attacks are becoming more frequent and troublesome we should trephine and Consider the prognosis doubtful.

We have not yet Considered the third class of injuries, viz, those which are Complicated with laceration of the dura mater. We have made this a separate Class because we find by Consulting the books that it is the Custom; they seem to be governed by the same rules that Control the last species of injuries and are perhaps as amenable to judicious treatment. For it is that portions of the brain will sometimes protrude making a fungous growth which should be restrained by pressure or Caustic or the Knife and Constructed by depletive remedies & the general system. We know of no better Cure to be taken of the wound than that recommended under fracture with Compression.

Fracture of the Base of the Brain

sometimes occur as the result of smoth violence. If there is a distinctive symptom of this it will be found in the expudation of blood from the ear yet this cannot be considered pathognomonic since it occurs without fracture. These fractures may be treated according to the rules above given and the patient will die.

Compression of the brain sometimes happens from effusion of blood in consequence of rupture from violence or otherwise of the middle or external meningeal arteries; the usual symptoms of compression will result and we must make up our diagnosis from the previous history. To ascertain the seat of the effusion is a rather nice piece of guess work, there should occur out of medicine proper, but triphining over any part of the cause of these attacks would be the indication as the Patient must inevitably die unless relieved and his only hope of relief lies in evacuating the effused blood.

Punctured wounds through the Orbital Plate of the Ethmoid are nearly always fatal. The indications are to remove foreign matter, whether of Bone or of the instrument which caused the injury enlarging

the Spring by suitable means if necessary.

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